PS

THE PREVENTIVE MAINTENANCE MONTHLY

Issue 19 1954 Series

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VEHICLE HEALTH INSURANCE

PREVENTIVE MAINTENANCE

LUBRICATION

TRUCK, ¼-TON

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inactive periods, intervals may be exten
preservation.

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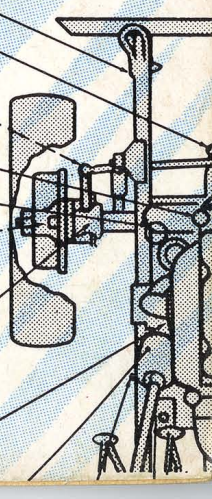

AT THE COST OF ONLY MINUTES A DAY

WAR—IN PEACE

Time marches on, and as it does, more and more of the old sods who did the fighting in World War II and Korea are finishing their time and leaving the Army.

The training program does its best to give the newcomers some idea of what they may be up against if the show goes on the road again. But it's very hard to get across the fact that equipment must be kept in top condition at all times during the quiet periods so you'll be ready to roll when someone blows the whistle and you have to go into combat.

It is the tanker who entered the action with a tank he nursed like a baby all its life who comes out alive. The "cowboy types" and the guys who forget about care and cleaning have the cards stacked against them.

It's all a matter of habit and frame of mind. If you always think of each tank you handle as the last tank you'll ever get, and always try to be just as easy on the old girl as you possibly can (even in action), you won't be likely to find yourself sitting inside a broken-down kettle while the other team lowers the boom.

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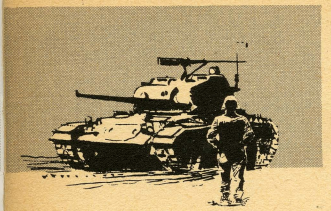

When the situation deteriorates—as the guys who aren't there like to call it—your machine can go without lubrication, cleaning and adjustment for a surprisingly long time, and still keep fighting. You can attend to the war and forget the tank for long enough to fight through the action to a quiet spell again. Your tanks can take more than the other guy's, anyhow.

But, the little tricks that give you trouble when you are safe at home on the training course will tear up your tank just as fast as when the chips are down. Only breakdowns in battle hurt; you don't get off with a chewing—you don't get off at all.

So, let's study our tanks and learn to avoid all the little abuses in our driving which can break us down. Downshifting at too high a speed, for instance, will bust a transmission under fire just as fast as it will on the Fort Knox driving ranges.

Now, if you'll only remember to treat your present tank right, when you have to fight with one you'll have a good chance of getting back to make a pest of yourself in the PX beer-hall:

"Now, in our war . . ."

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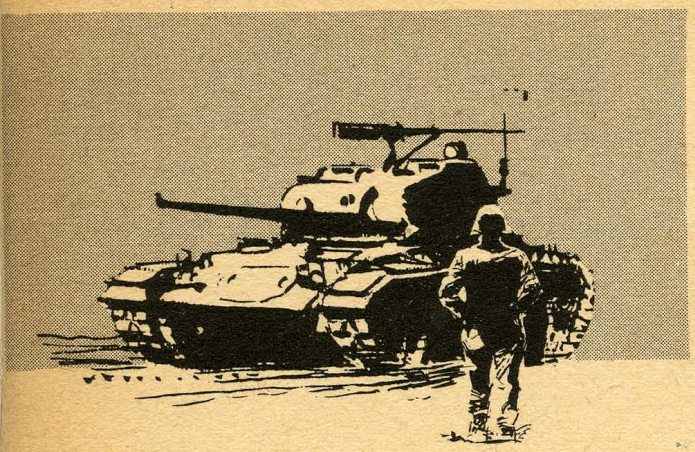

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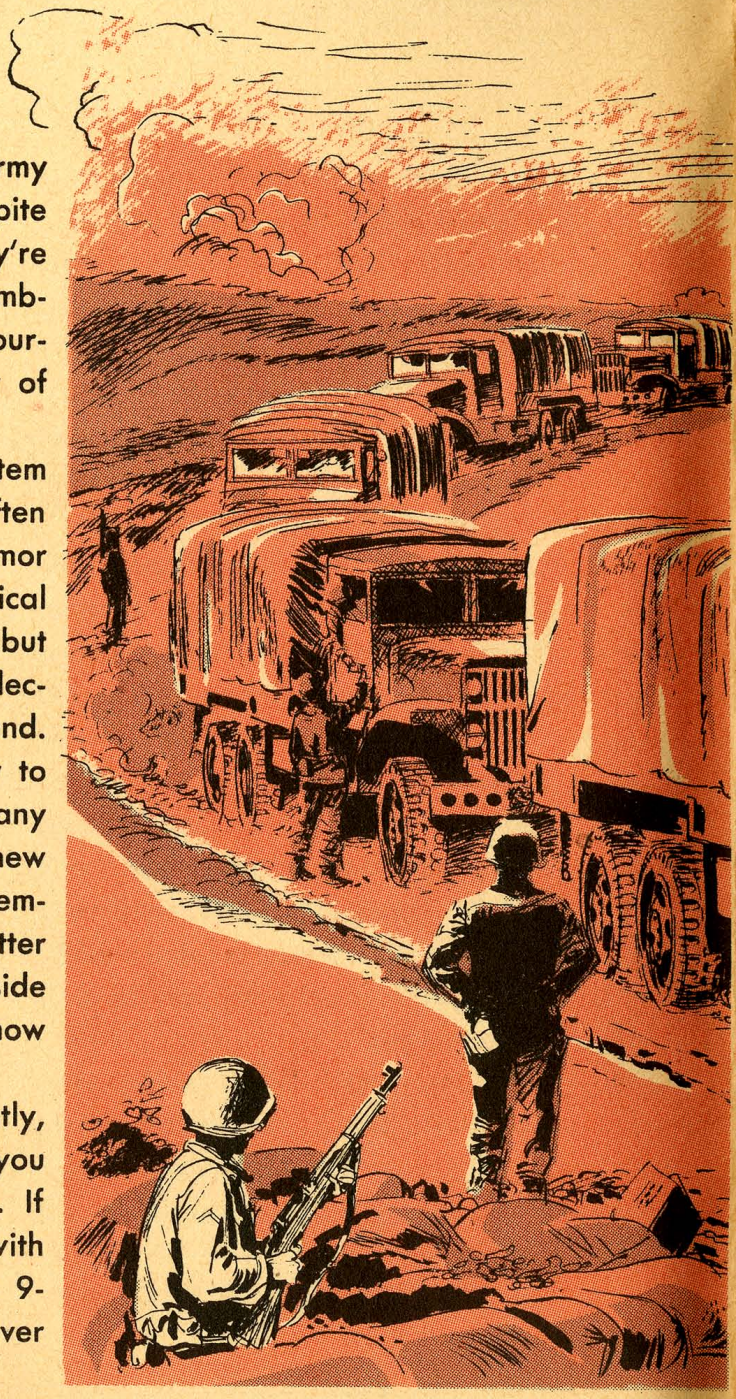
IT'S AMAZING!



Some of the smartest men in the Army work in motor pools. Yes they do, in spite of what the motor sergeant says. They're the men who understand the internal plumbing of a carburetor, the home life of a four-cycle engine—even the sexual behavior of the hydraulic brake.

But when it comes to the electrical system of the truck or tank these same men often bog down in a mess of superstition, rumor and plain black magic. 'S awful. Electrical troubles deadline a heck of a lot vehicles, but some of these same smart men shy off an electrical job like a cat shies off the dog-pound.

This is plumb foolish, for it's as easy to understand your electrical system as any other part of your vehicle. With the new vehicles all you do is test and replace assemblies, anyhow. Of course, you will do a better job if you understand what goes on inside the boxes, what they do for you and how they do it.

Let's hit the high spots, once over lightly, to give you the minimum understanding you should have for unit motor pool work. If you want the whole bill of goods, start with TM 11-661 and go from there to TM's 9-1825A, B, and C, which pretty well cover the subject.

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WHATEVER YOUR MOS—ONE MISERABLE MORNING IT'LL COME IN HANDY TO:

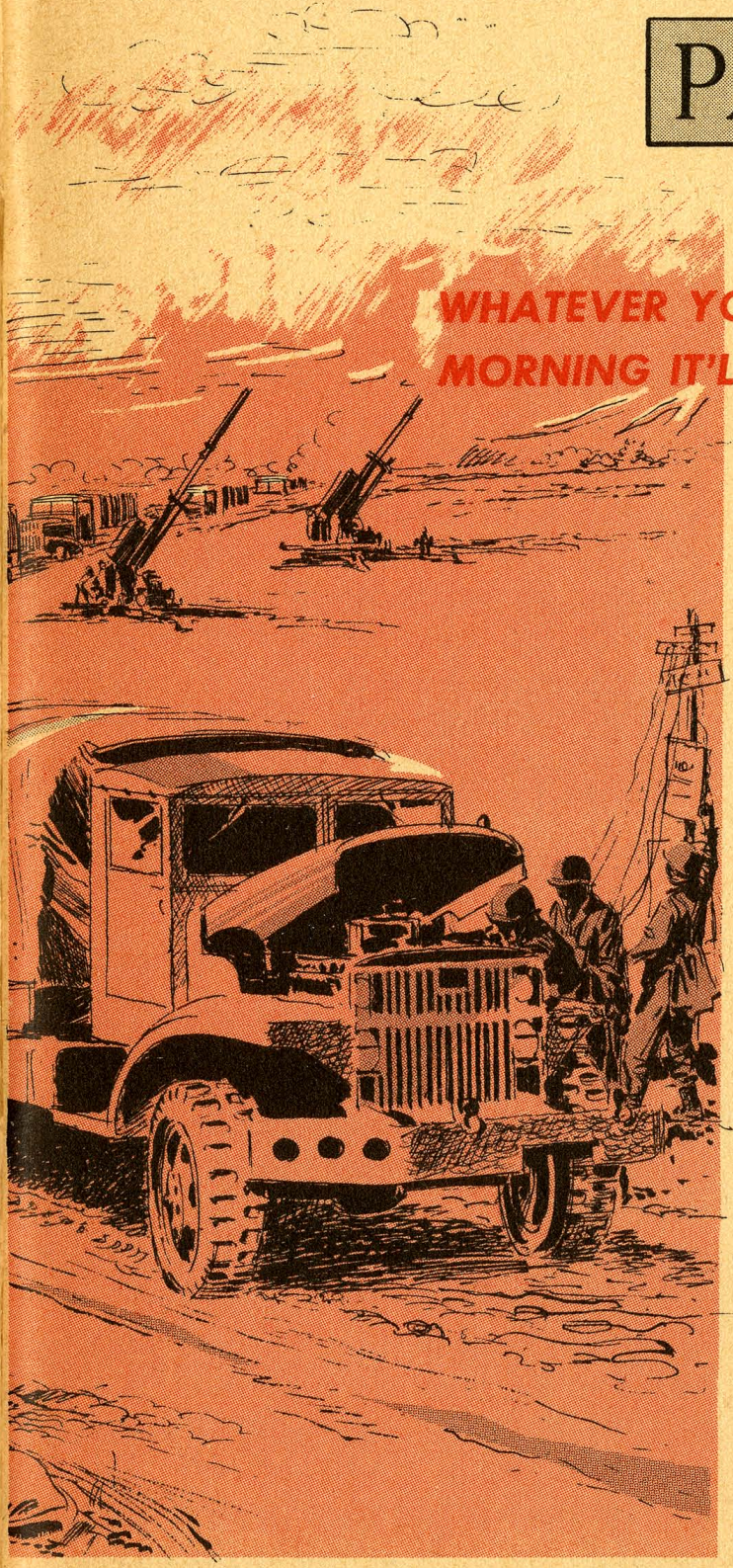
KNOW YOUR BATTERY

Perhaps the most cussed and discussed part of your whole electrical system is the battery. This is probably because it is misunderstood, even by those who have a pretty good idea of what goes on in their generator and regulator.

To begin with, the name "storage battery" implies a storeroom for some electricity. This is misleading, for except in special and limited cases, electricity cannot be stored. Any electrical current must be used at the same instant it is generated. There is no way to pen it up in a battery until it is needed. On the other hand, as you all know, we apply a charging current to a vehicle battery today, and somehow we get current from the same battery tomorrow morning when we want to start our truck. Confusin'? Read on—

ELECTRICAL SYSTEMS

PART 1



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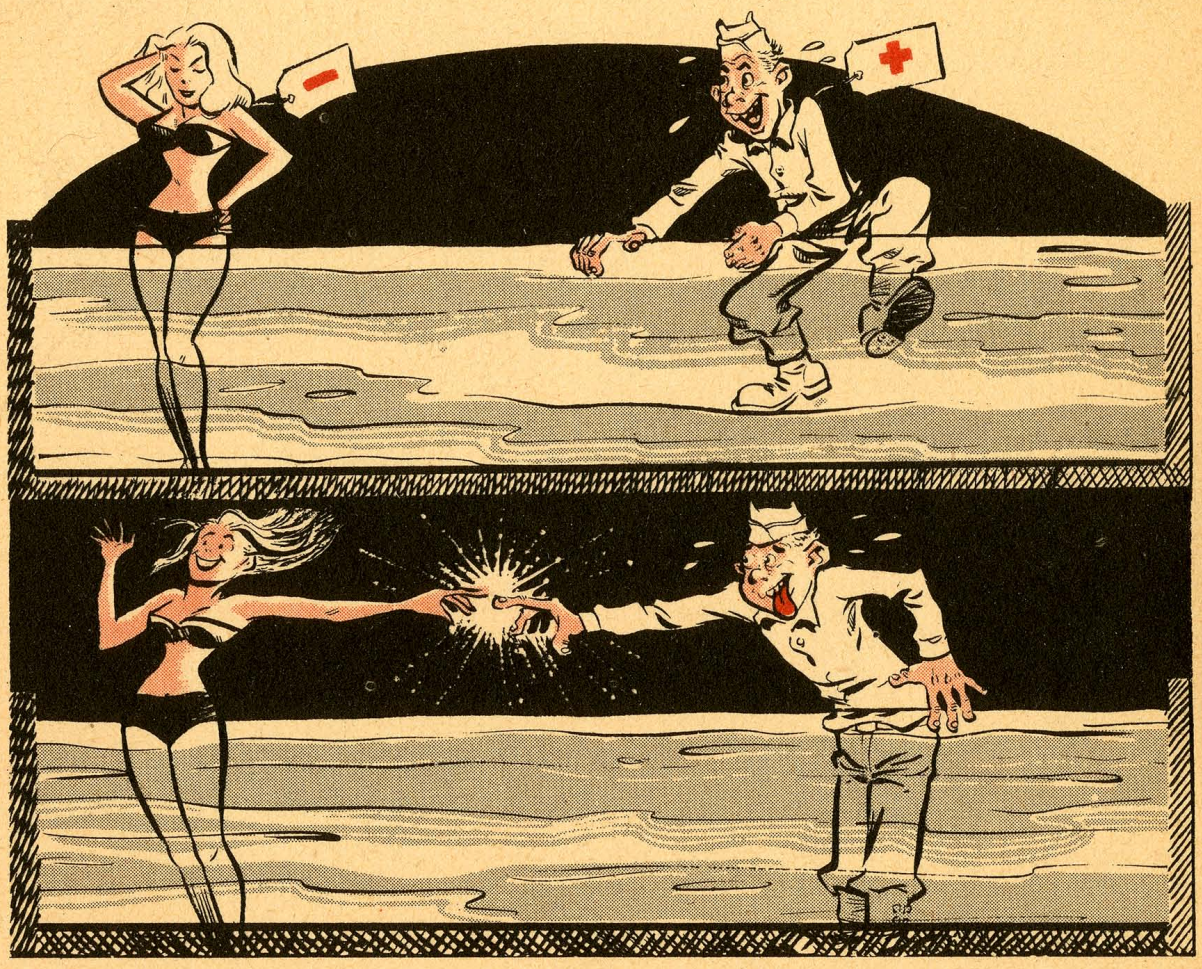
BATTERY CURRENT

What actually happens is this: While you cannot store electricity, there are some chemical conditions which will produce electricity. In general, two different metals in an acid or an alkali solution will have an electrical current set up between them. Some other materials (such as carbon) will have the same effect. Naturally, some of these materials will produce a greater flow of current for a longer time than others, but in every case, the production of the current is dependent on actual chemical changes within the cell.

In your flashlight battery or the larger dry cells used in radios, the current is produced by the action of ammonium sulphate on the zinc which forms the cell's outer shell. This zinc is gradually consumed by the chemical action, and as you have no doubt seen, if the battery is left in the flashlight too long, it starts to leak all over the inside of the case.

It would be possible to run a vehicle on this type of dry battery. The trouble would be the size of battery needed and the cost of replacing the zinc elements every few starts, for this type of battery reaction is not reversible; therefore, the battery cannot be recharged.



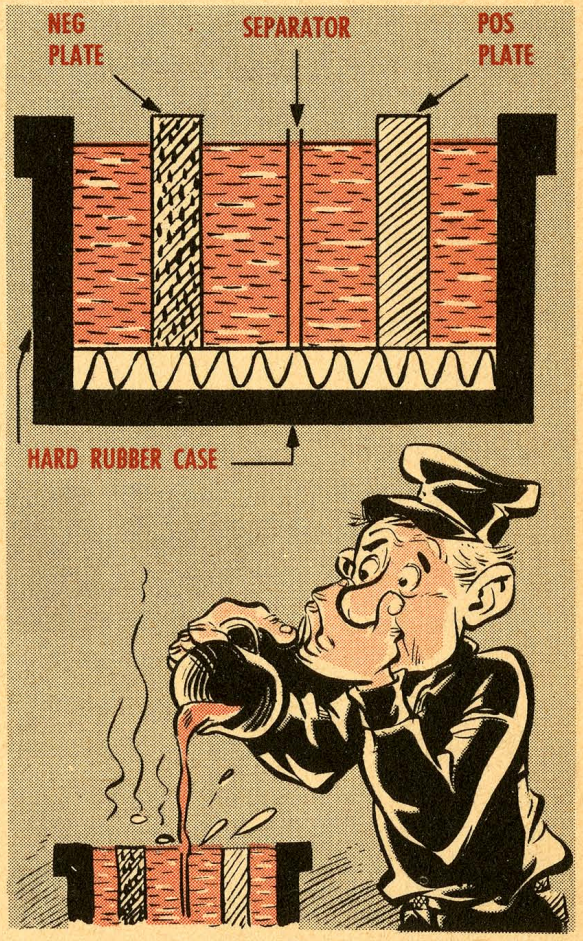
STORAGE BATTERY

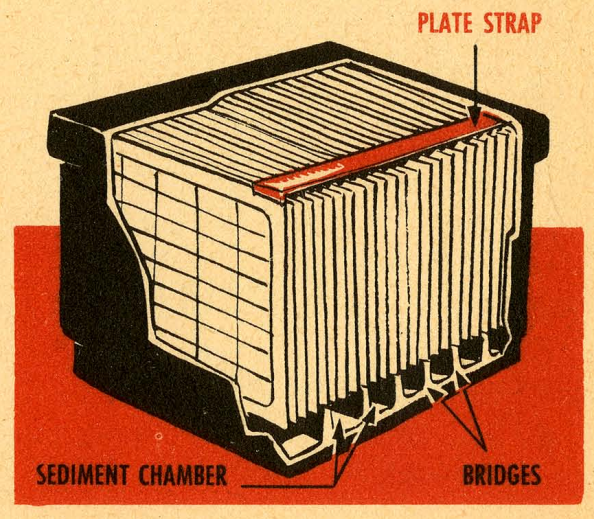
Fortunately, there is one type of battery reaction that has the advantages of being reversible, and at the same time using relatively common and reasonably cheap materials. This is the lead-acid battery, or the common automotive storage battery.

You've probably seen broken batteries. You may have taken them apart, if only to salvage the lead in them for fishing sinkers. In any case, these batteries are made up of alternate plates of sponge lead and lead peroxide. These plates are separated by thin porous plates, generally made either of wood or (in military and some other heavy-duty batteries) of micro-porous rubber or fiber glass.

A bank of these alternate plates and separators is suspended in a hard rubber case and makes up one cell of the battery. The case is then filled with a mixture of sulphuric acid and water, originally about 39% acid to 61% water. (Specific Gravity 1.290 at 80°F.)

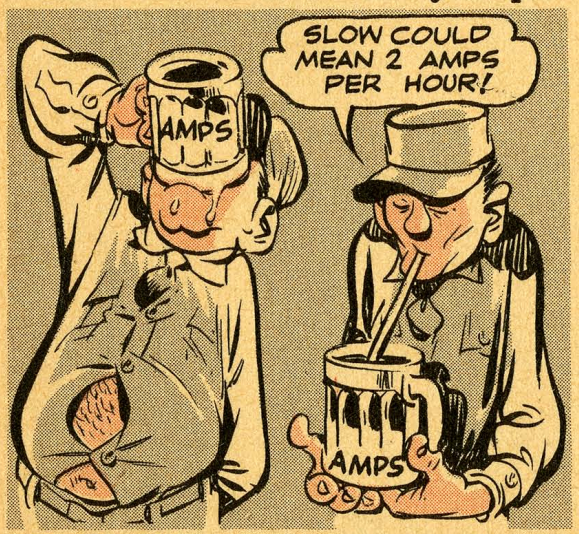
Taking the chemistry over slowly, you have negative plates of sponge lead, positive plates of lead peroxide—this is a compound of lead and oxygen—separated by non-conducting but porous separators in a solution of dilute sulphuric acid. All the negative plates are connected to each other, but not to the positive plates; while at the other end of the cell, all the positive plates are connected to each other, but not to the negative plates.



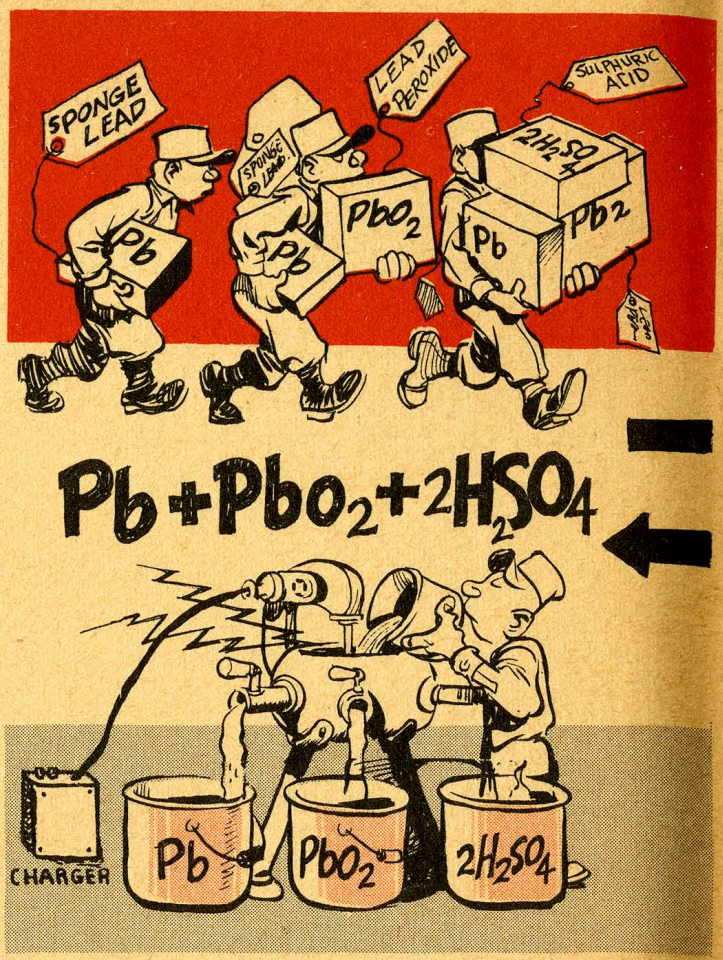


Now, if you connect a voltmeter from the positive terminal of the cell to the negative, it will indicate a potential of roughly two volts. If you connect a two-volt lamp, it will light. Now watch what happens. As the current is drawn from the cell, some of the "sulphate radical" (SO_4) of the sulphuric acid combines with the lead of the lead peroxide in the positive plate, while some more of it combines with the pure lead in the negative plate. At the same time, the oxygen (O_2) from the lead peroxide in the positive plate combines with the free hydrogen (H) left in the electrolyte to form water.

As you can see, this action is gradually turning both the positive and the negative plates into lead sulphate. Now remember that only **different** metals (or compounds of metals) in a solution will produce current. So when the plates turn into the same metal compound, the current falls off and finally stops.



BY **SLOW** DISCHARGE WE MEAN HOW MUCH YOU GET PER HOUR...SEE??



Actually, this reaction will not go all the way to completion, since the electrolyte is being diluted all the time by the water made in the reaction. The SO_4 is also being withdrawn. Also, the lead sulphate forms as crystals that settle on the plates, and finally prevent any more acid from reaching the plates. But when the reaction has gone as far as it will go, the battery is said to be completely discharged. (A long slow discharge will get a lot more out of a battery than a fast discharge, which is why your battery will often fire your ignition long after it refuses to crank your engine).

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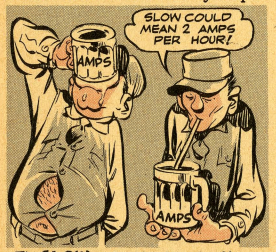

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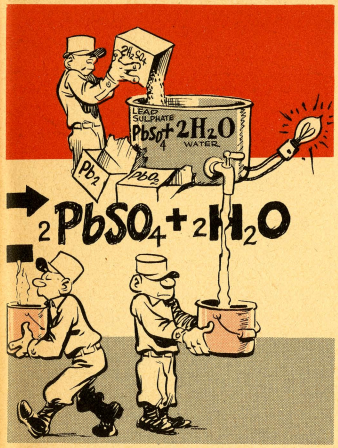


Now if this were a zinc-acid dry-cell flashlight battery, that would be the end of it, and a new battery would have to be put in its place. But this is a reversible reaction, and you can put things back like they were by running a current from some other source, (generator or battery charger) back through the battery.

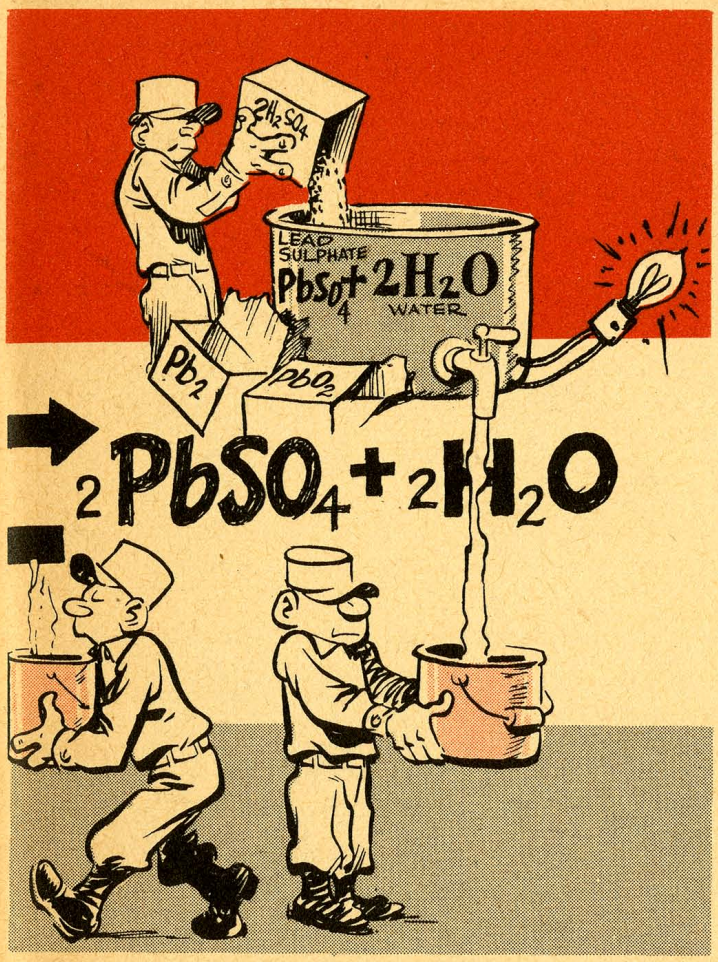
The lead sulphate on both plates is split up by the charging current into lead and "sulphate radical," while water is split up into hydrogen and oxygen. The sulphate radical leaves the plates and combines with the hydrogen to form sulphuric acid. At the same time, the oxygen combines with the lead of the positive plate to form lead peroxide. Notice that water actually takes part in the chemistry of this battery.

(**Note:** This is a simplified explanation of the reaction—for a complete rundown, see battery TM 9-2857.)

Since sulphuric acid weighs more than water, the amount of acid in the cell can be measured by taking the specific gravity of the solution with an ordinary battery hydrometer. Notice that as the cell is discharged, the specific gravity falls off for two reasons: Sulphuric acid is being transferred to the plates, and new water is being made. This water is formed at the positive plates, and since it mixes slowly, these plates are most likely to be damaged by freezing after a real heavy discharge. Remember this for later when you are considering cold-weather battery care.

BATTERY FREEZING POINTS

Specific Gravity	Freezing Point
1.275	−85°F
1.250	−62°F
1.225	−35°F
1.200	−16°F
1.175	−4°F
1.150	+5°F
1.125	+13°F
1.100	+19°F
1.000 (water)	+32°F



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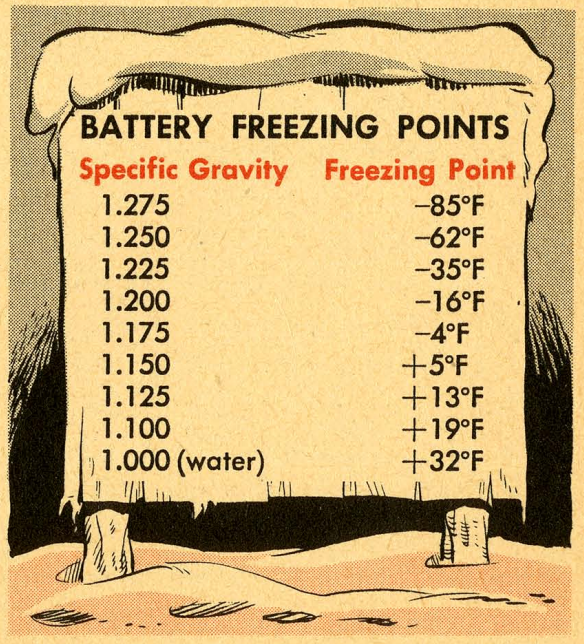
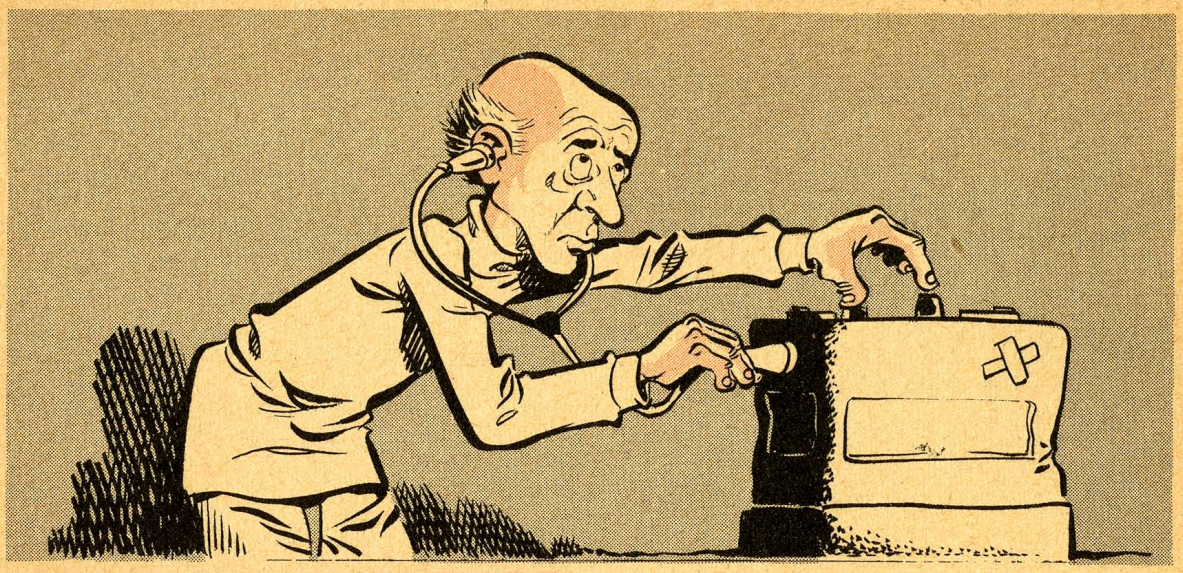




HYDROMETER READINGS

When the battery is charged, the specific gravity rises for two reasons, the reverse of those above: The water is used up, and the sulphuric acid is formed. This acid also mixes slowly, and sometimes the specific gravity of the solution (up at the cell cap where your hydrometer gets hold of it) will seem to rise for some time after charging is stopped. Actually, you are not getting any more acid into the solution, you are just waiting while it mixes all around.

Another thing can fool you: If you take a reading while the solution or electrolyte is full of gas (it forms while charging), you will get a false low reading. So take your final readings after the battery has been off charge for an hour or two.

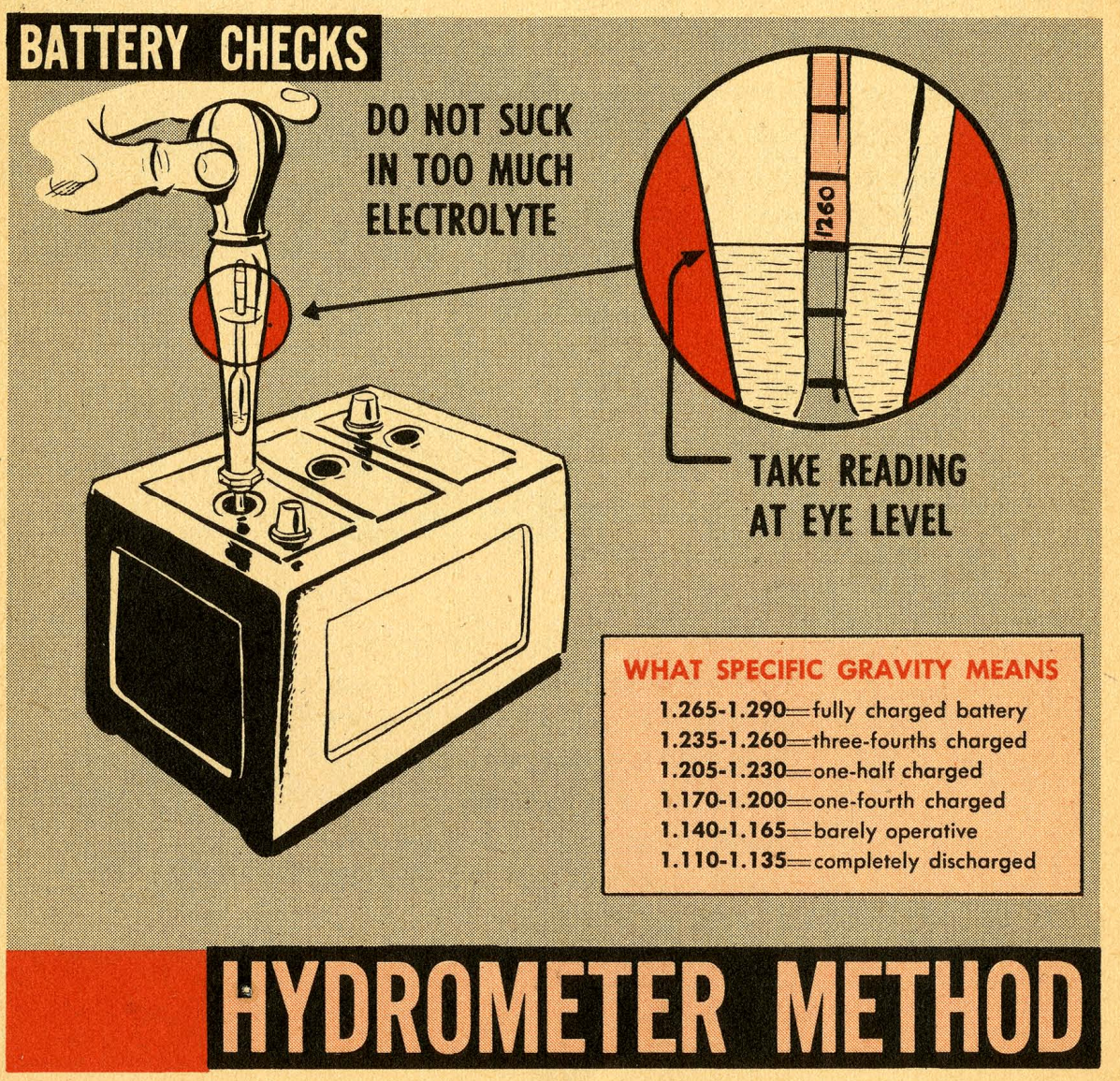
As you know, the 6-volt car batteries have three cells, connected in series. The 24-volt military trucks have two 12-volt batteries of six cells each, also in series, to produce the desired 24 volts. Since all the cells in any one battery are made exactly alike, made at the same time, get their first charge at the factory together, and work together all the time—it follows that they should be in the same condition of charge at all times. Which means that they should have the same specific gravity at all times.

One of the first signs of trouble in a battery is any measurable variation between cells in that battery. Many things can cause variations between cells, but they all mean trouble, whether a short circuit between the plates, a failure of the separators, loss of acid by spilling or overheating, addition of too much water to one cell, or whatever. So whenever your battery shows a variation of more than twenty-five gravity points between cells, get it out of your truck and put in good batteries. You never want to be running around with a doubtful battery.

TEMPERATURE vs CHARGE

Your hydrometer will also tell you the state of charge your battery is in, but there is a joker in the deck. You must know the temperature of the battery solution in order to get real useful information from the specific-gravity reading (see chart). When your electrolyte cools down it contracts and becomes denser. Therefore, a cold solution will give a higher reading than a warm one, although the actual percentage of acid is just the same. But since the percentage of free acid in the cell is what tells the state of charge of the cell, you should allow for the temperature before you can learn much about the state of charge.

If you have a way of telling the temperature of your solution, or if you know the temperature of the air in which the battery has been standing for a long time (all night or longer) without being either



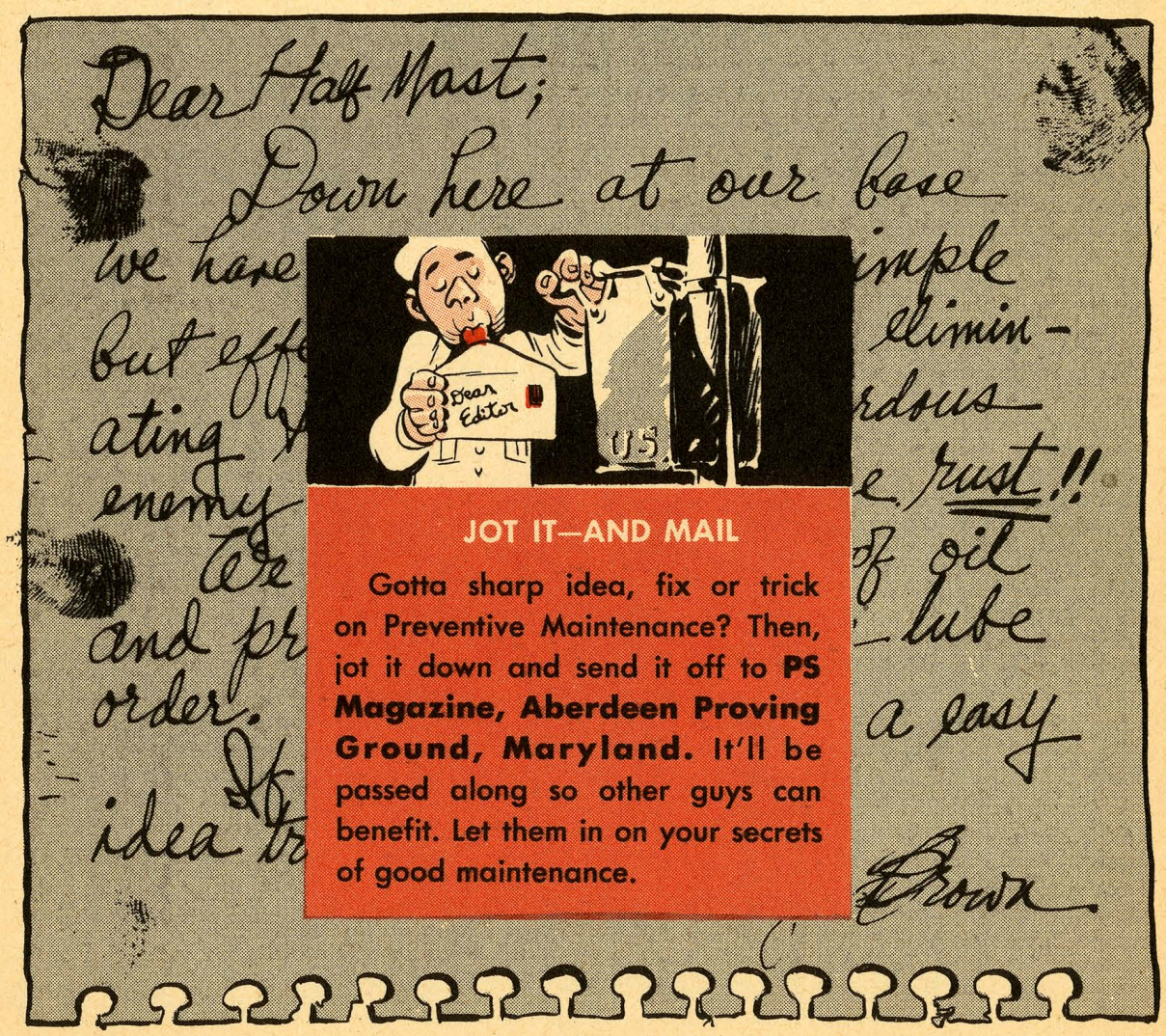
HYDROMETER METHOD

charged or discharged, here's how to correct for temperature:

For every **ten** degrees **below** 80°F you **subtract** 4 gravity points from your reading. For example, a battery of O°F might read 1.232, a reading which would indicate about half charged at 80°F. But when you subtract the 32 points (4x8=32) to correct for temperature you find it is actually a 1.200 battery, or barely ¼-charged.

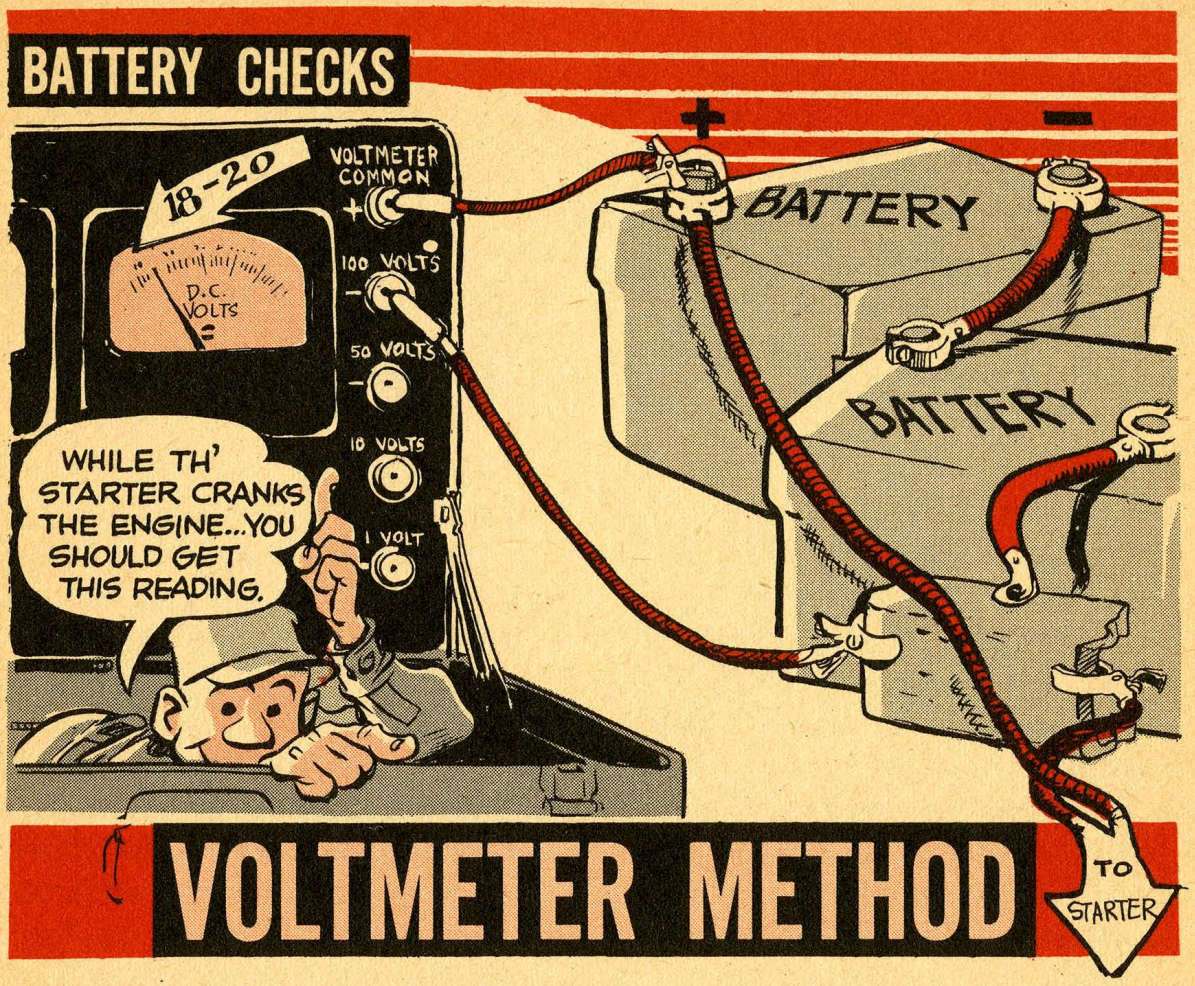
On the other hand, you **add** 4 gravity points for **every ten** degrees **above** 80°F. On a real hot day in the desert, say 120°F, a battery which reads 1.244 (4x4=16) would actually be at 1.260, or fully charged.

You can see that in field conditions this problem is going to be hard to lick, but you don't really have to lick it. All you need to do, if you don't have a real good way of checking cell temperatures, is to check your reading carefully for variation between cells. No matter how hot or cold the battery is, if the cells show more than twenty-five hydrometer points difference, get it off your truck because trouble is coming.



JOT IT—AND MAIL

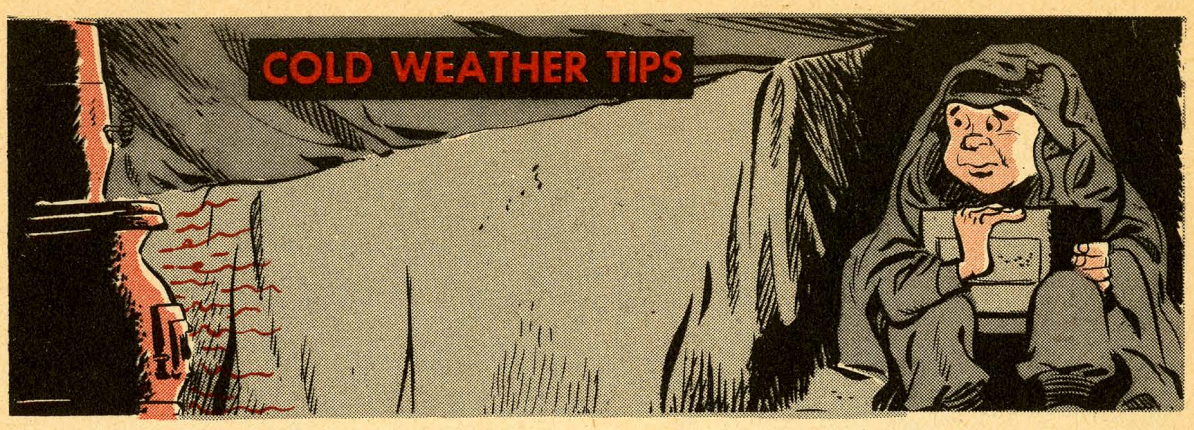
Gotta sharp idea, fix or trick on Preventive Maintenance? Then, jot it down and send it off to **PS Magazine, Aberdeen Proving Ground, Maryland.** It'll be passed along so other guys can benefit. Let them in on your secrets of good maintenance.



Now, to see if your battery is near enough charged to run your truck, get a voltmeter that goes to at least 30 volts and hook it from the positive post of your battery to ground. Leave your switch off, and crank your engine with the starter. If you have at least 18 volts while the starter is cranking, you have enough for ignition. And if the starter turns your engine reasonably fast, you have enough capacity to start.

The joy of this particular test is that you make the temperature work for you. On a real cold day you need a better battery than on a warm day, and on a cold day your starter takes more out of the battery to crank your cold engine. Therefore, if your battery will crank the engine at about normal cranking speed, and still have 18 volts left for the ignition, it is good enough to start **that** engine on **that** day—which is what you wanted to know in the first place.

Of course, the battery which passes this test on the Fourth of July in Georgia may not pass on Christmas in Wisconsin, but for where you are when you're there, if she cranks OK and has 18 volts showing, she is safe to take out on a run. If she won't pass the test, get a good one.



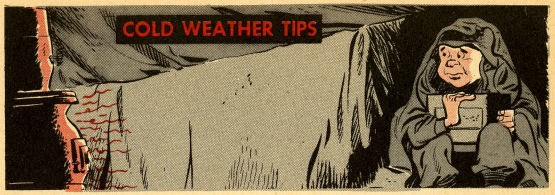
Cold weather also cuts down the output of a battery, even when it's in good condition and **fully charged**. In extreme cold, way below zero, you may find that you can't start, no matter how good your battery is, or it may happen that you can't get a good battery to replace your poor one.

If you have one of the slave kits or other portable heaters, you will, of course, heat the entire engine and the battery before trying to start. But if you have nothing but a heated maintenance tent (or any warm place, no matter what) take your battery inside, and warm it up. Keep the battery a safe distance from stoves or explosives and open fires and avoid heating it too fast. A good rule is not to let the battery get any warmer than will let you comfortably hold it in your bare hands. See TB Ord 390 for dope on using slave kit (M40) to heat batteries.

When you put the battery back in the truck she will probably start. However, do not be fooled if she does start—it will very possibly not start again after the battery gets cold. So don't kill your engine until you are back again to where you can reheat the battery if necessary.

If heating the battery is not enough to start the engine, remember that in trying to start, you have formed new water at the positive plates and so made the battery much more liable to damage by freezing. You'll have to take it out of the truck and back into the warm place until it can be fully charged again. (Naturally, in a 24-volt vehicle you give both batteries the same treatment.)

And speaking of the same treatment, never replace one battery out of a pair, change 'em both, and let the battery man who charges 'em test 'em fully and set up matched pairs for use together. If you couple a new battery with an old, believe it that the old one is not going to last long. Even though the batteries only need charging and testing, it must be done by a competent battery man who has a warm place to work, and can make both hydrometer and capacity tests to find well matched pairs of batteries that will work together.



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There are a few things you can do for your battery during the daily servicing of your vehicle which will keep it in the best of shape and mebby save you walking back some stormy night.

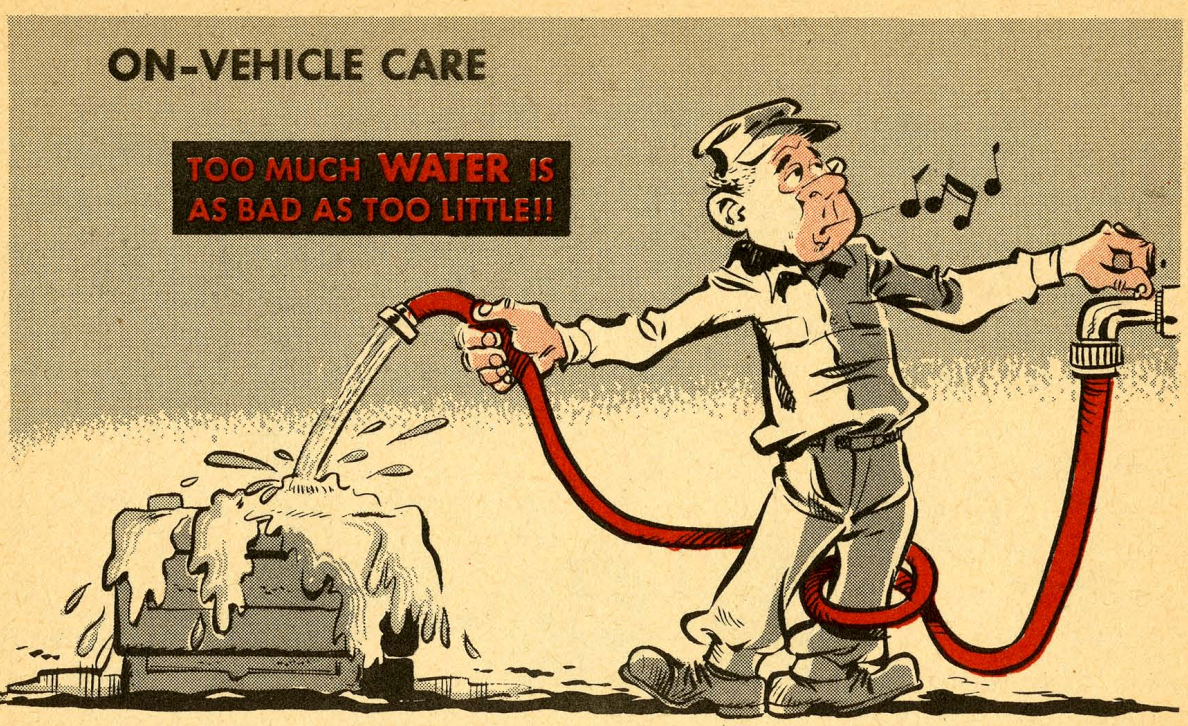
First of all, keep the top of your batteries clean—and this means really clean. Of course, you know enough to keep the water level up in your cells, but remember also that too much water is as bad as too little. If your batteries use more than about one ounce of water per cell in a week, you better talk to the shop electrician about checking your generator-regulator setting; might be too high.

The final decision on what water to use in a battery will depend on what you can get. Distilled water is best, of course. If you don't have it, the cleanest water you can get will do. If you have to use tap water, let it run until the water which has been standing in the pipe is gone. The fresh water will have less metal salts in it. Always remember that ANY water is better than NO water.

One other thing, since the heaviest demand for current in your truck, the starting load, goes from the battery through the heavy cables, be sure the cables are clean, tight and free of broken strands. After washing the battery is a fine time to take hold of each cable and test it for tightness. Another good idea is to crank your engine for 15 seconds with the switch off, and have someone lay hands on the cable ends while you do it. If they are loose or corroded they will get hot under the load.

Keep these ideas in mind and you won't have any trouble with the battery part of your system.

ON-VEHICLE CARE



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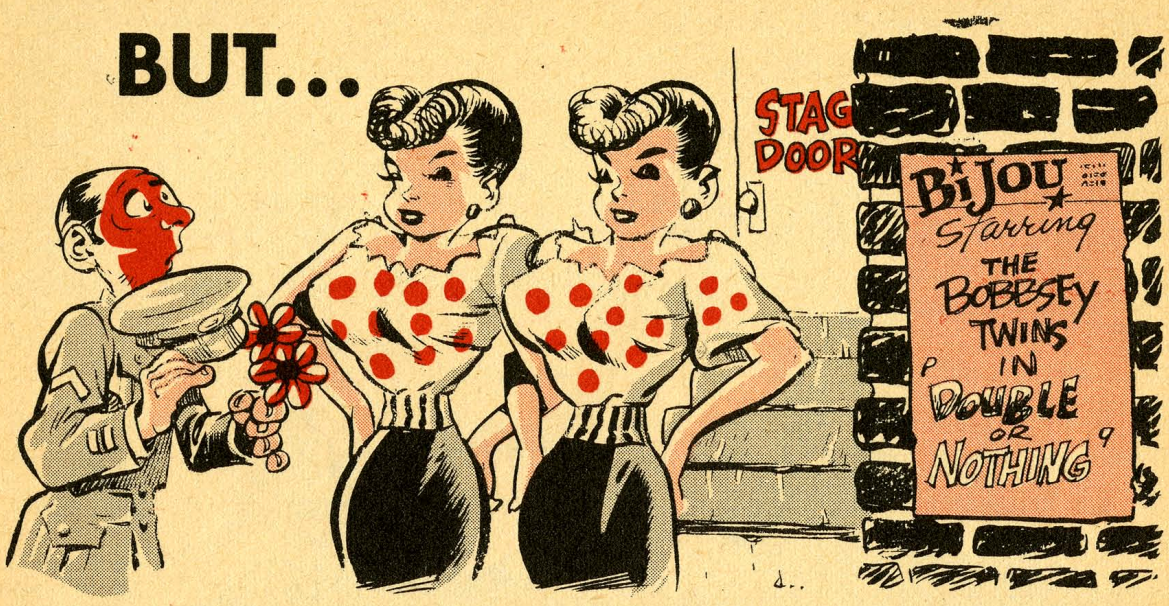
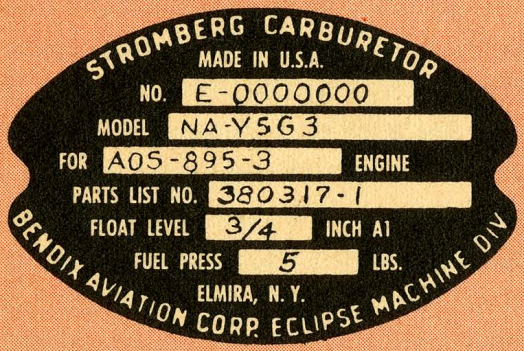
TANK CARBURETORS ARE INTERCHANGEABLE



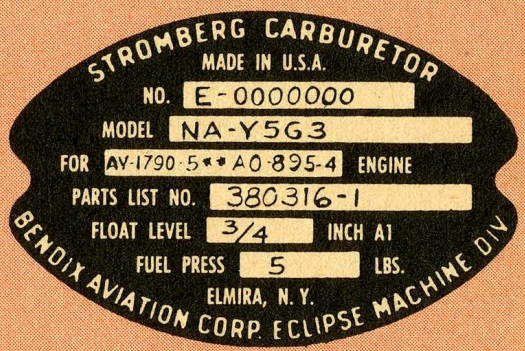
You gotta play it cool and get the right type carb for your particular track-wagon, Man. Otherwise, you'll find that Continental engine won't run worth a continental damn.

Some joes get the idea that the carburetors are **all** interchangeable between **all** these Continental engines. But that just won't get it.

There are two different types **but** four different carburetors. From the outside they look a lot alike. But one type (two different carbs) works right on the AOS-895-3 engine only; the other type (also two carbs) on the AO-895-4 and all AV-1790 series. Give one of these engines the wrong juice-pot and it'll spit 'n sputter 'n drag its heels.



You'll find this nameplate on carburetors covered by Stock Nos. G251-7346585 and G251-7416587. They're for the AOS-895-3 engine only.



This nameplate will be on carburetors covered by Stock Nos. G244-7521189 and G262-7403299. They're for AO-895-4 and all AV-1790 Series.

All four carbs carry nameplates which identify them as Model NA-Y5G3 (see figure on page 870). And this might fool ya, if ya didn't look any further. But a closer gander'll show that the nameplate is also stamped with the engine model on which that particular jug should be used. Now, that's the dope that steers ya straight—not just the carb model number.

Also, you oughtta know that there's been a slight change affecting both types of carbs. On earlier engines they both used ¼" studs for mounting the air-intake elbow. On those coming out now they take 5/16" studs. The chart shows you which is which. (Depends on serial number of your engine.)

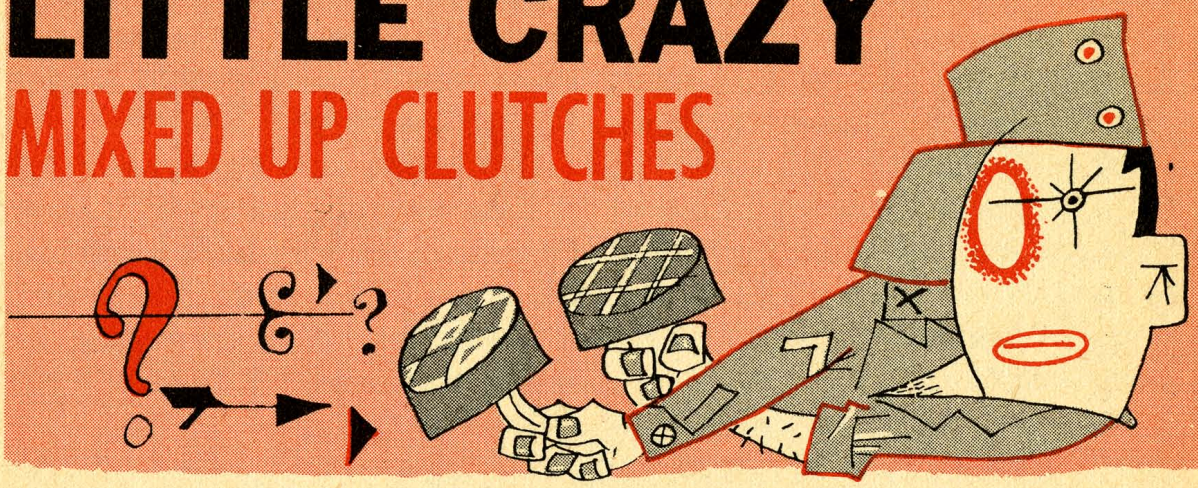
Now you're about to ask if two jugs made for the same engine model—but using different size studs—are interchangeable. Right? Right! They are.

Just make sure the **type** of jug is right for your particular engine. Of course, you may have to get bigger studs or get Ordnance to drill and tap the holes, depending on which carb (stud size, that is) your requisition brings.

But whenever you need a jug for a tank with a Continental power plant, this chart will pick you up on the right stock number to use. Just check your engine model and serial number and order the carb as indicated. You either get it (if it's available) or one that'll work.

FOR THESE VEHICLES	M46, M46A1, M47, M48, M75 (T18E1)	M8E1, M41 (T41E1), M41A1 (T41E2), T98E1, T99E1
WITH ENGINE MODEL	AO-895-4 and all AV-1790 Series	AOS-895-3
*USE CARBURETOR STOCK NO.	G244-7521189 (has ¼" studs for mounting air intake elbow: 1790 Series thru Engine Serial No. 4948; AO-895-4 thru Engine Serial No. 242.)	G251-7346585 (has ¼" studs for mounting air intake elbow: thru Engine Serial No. 1939.)
*Note: In case some of you cool cats have your other eye on TB Ord 513 (28 Apr 53) which says something a little different on the subject—don't holler yet. The TB is being revised.	G262-7403299 (has 5/16" studs for mounting air intake elbow: 1790 Series after Engine Serial No. 4948; AO-895-4 after Engine Serial No. 242.)	G251-7416587 (has 5/16" studs for mounting air intake elbow: after Engine Serial No. 1939.)

LITTLE CRAZY
MIXED UP CLUTCHES



Clutch failures on the 5-ton 6x6 trucks can be minimized. And you yourself can give them the psycho treatment that'll make them snap back and do right. The best part of it is you dish out the prescription while lying on your back. Just follow these red-hot remedies and there won't be any chance of your clutch going down the drain.

1st Dose—The grease fitting on the clutch release bearing sleeve must come out (see Fig. 1). In place of this fitting put a ⅛" pipe plug (H106-0143932) and thereafter keep grease outta this sleeve. Make a note on your LO about this. This sleeve will get its share of grease at time of rebuild or overhaul. So—that lets you out.

2nd . . . a minor operation—The transmission level. It must be kept as outlined in MWO Ord G744-W4. Now here's where we're going off the beaten path a little. That MWO provides a transmission oil-level inspection-hole so the oil will be at the right level, but rumor has it that some people have misinterpreted the MWO

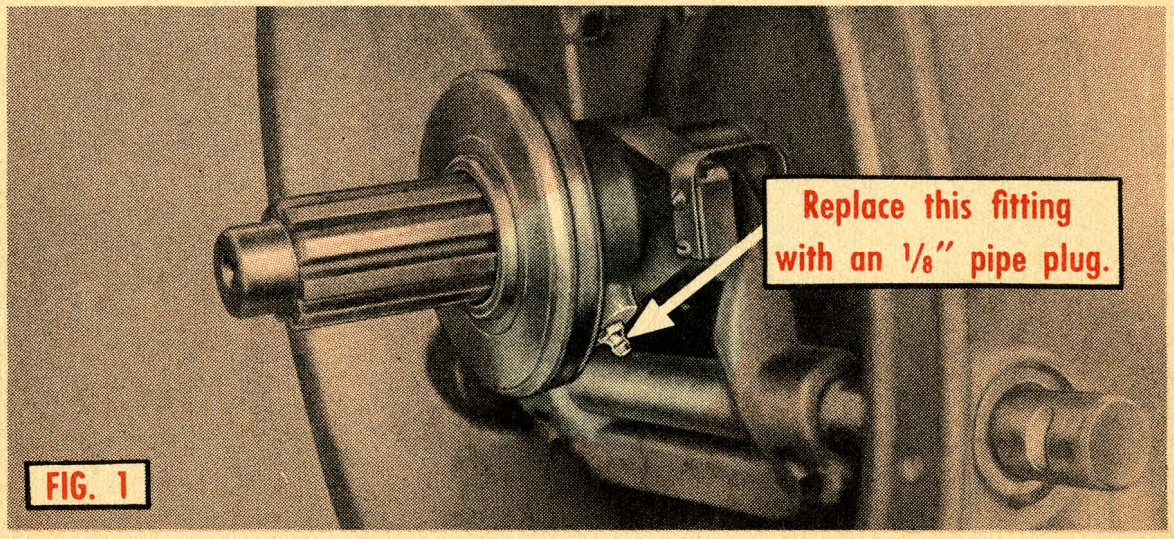


FIG. 1

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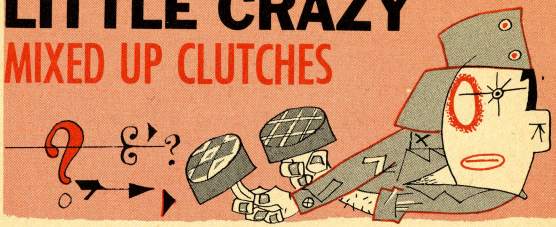

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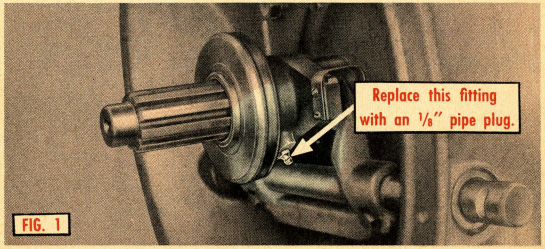
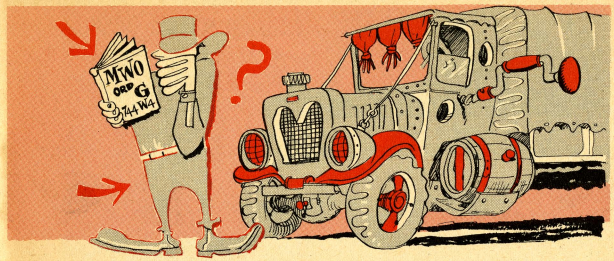


FIG. 1



and are drilling the inspection hole in all their 5-tonners.

They've got the wrong impression. The MWO applies only to the early model trucks which have the transmission filler and inspection hole located above the power-takeoff plate. Before you drill, measure the distance between the center of the drain plug and the center of the filler plug. If it's 6⅛", then it's a late model truck to which the MWO does not apply. But if the measurement is 7¼", then do as the MWO says (Fig. 2).

No matter where the inspection hole is, the right amount of oil in your transmission is 27 pints with PTO and 23 pints without the PTO.

Now for the last of the cure . . . remove the drain plug from the flywheel housing and keep it in your map compartment. It's to be used for fording purposes only.

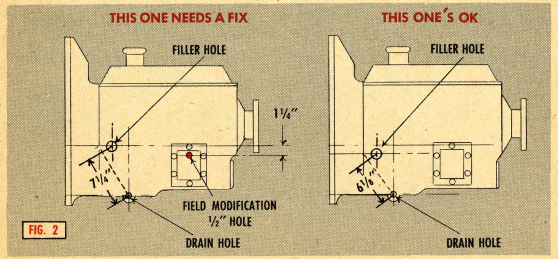
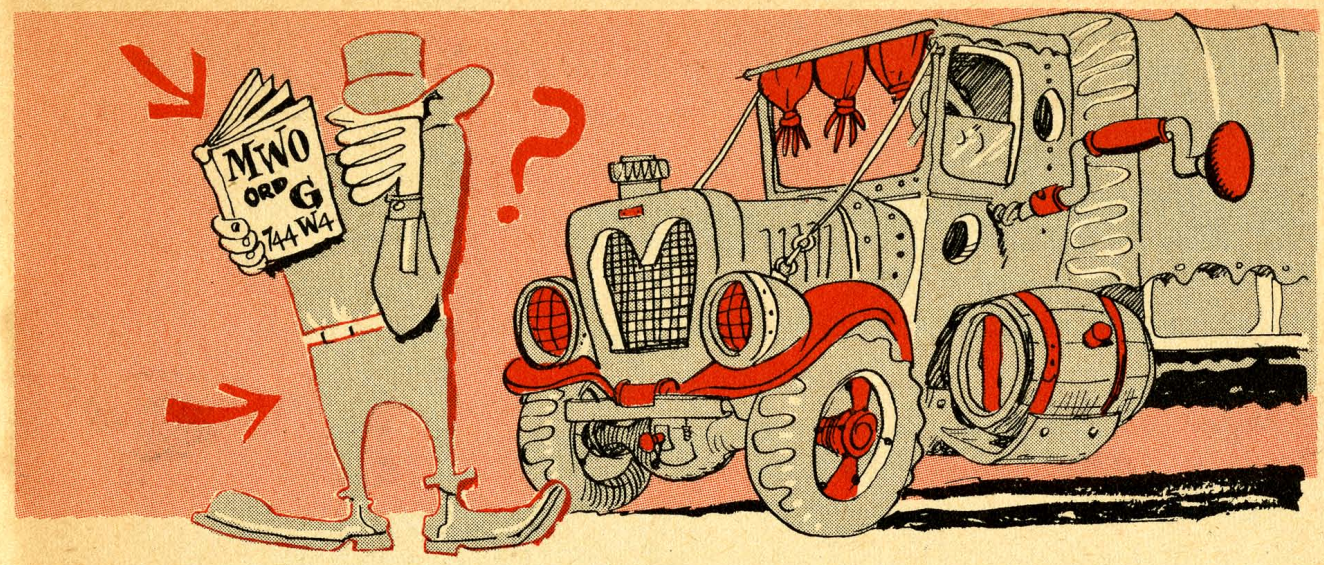


FIG. 2



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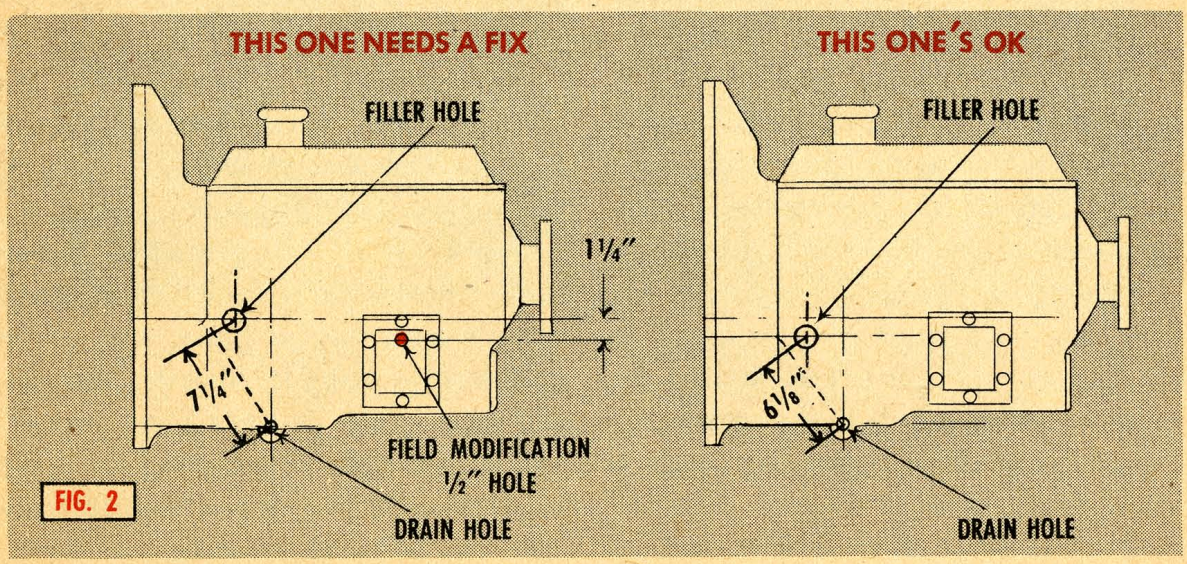
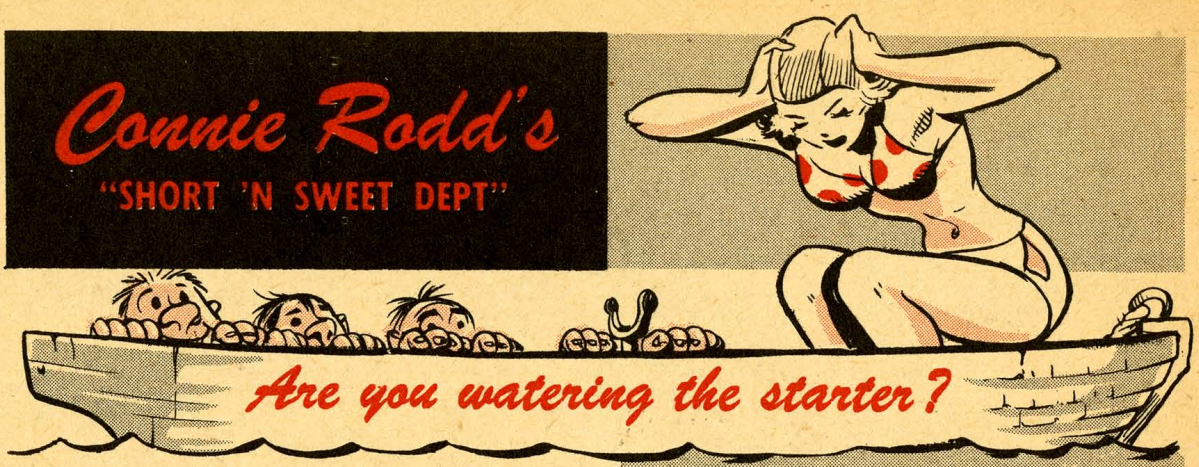


FIG. 2

Connie Rodd's
"SHORT 'N SWEET DEPT"

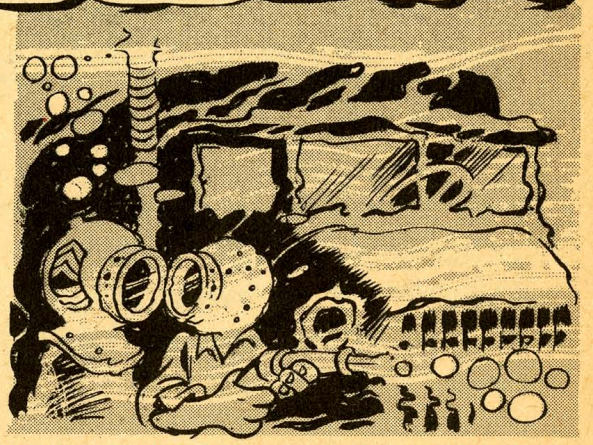


Are you watering the starter?

Be careful with the use of water or steam when cleaning your new GMC M135, M211, M215, M217, M221 and M222 trucks.

It's possible for water to enter the flywheel housing thru the vent system and get into the starter. Water getting into the starter sets up rust and corrosion which can destroy the starter shaft bushing and cause the starter drive gear teeth to wear excessively, 'specially if the truck is idle for any length of time after a good wetdown.

Ordnance also has added two gaskets to help stop this trouble. They're Flywheel Housing Cover Gasket (Stock No. G749-8327563) and Starting Motor to Flywheel Housing Gasket (Stock No. G749-8327564).



NOW, DON'T TELL ME YOU'RE GONNA GET 'CHICKEN' ABOUT WASHIN' A TRUCK

They're factory installed on vehicles after M135-6737. On vehicles before that, they'll be put on in the field.

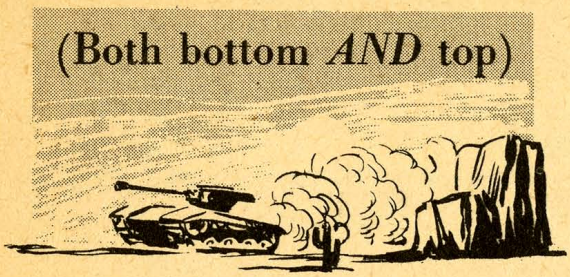
Rattle removing

Some M38A1's are finding their engine hood's cross-member banged up by the engine's lifting-ring after the engine's been taken out once or twice.

Lifting the engine can stretch the ring, so it's a good idea to check its clearance every time it's reinstalled. Besides knocking a hole in the cross-member, the ring's close contact with it gives out a terrific rattle.

To save your cross-member and get that quiet ride, check the engine's and lifting-ring's mount bolts to see that they're fit and snug. And check the welds at the lifting-ring's feet—a broken one could make it flip. If everything's tight and in place, and you're still having trouble, shorten the lifting-ring a little. If she's tight, take off and hammer the ring back to its original shape. And when you use that hammer, tap rather than swing.

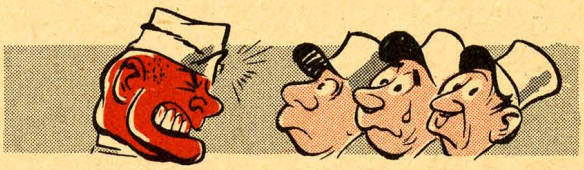
Air cleaners...keep clean



When operating your M48 tanks in extremely dusty conditions (desert, for instance), it'll pay you to check and clean the **tops** of your air cleaners as well as the oil reservoirs.

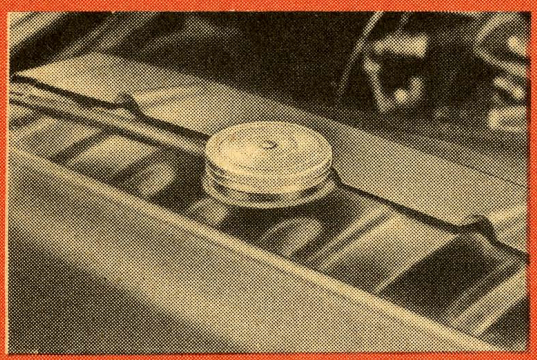
Saw a tank at Camp Irwin which had been evacuated to Ordnance for lack of power on the stall test. Oil reservoirs were clean as a whistle, but the air ducts up on top of the cleaners were packed with the red desert dust.

The crew dumped the oil cans and put them back on to catch the dust, which was then scraped and washed off the upper section. Emptying the dust out of the oil cans and cleaning and refilling them was all it took to return the tank to action. You shoulda heard the sermon the shop officer preached to that crew!

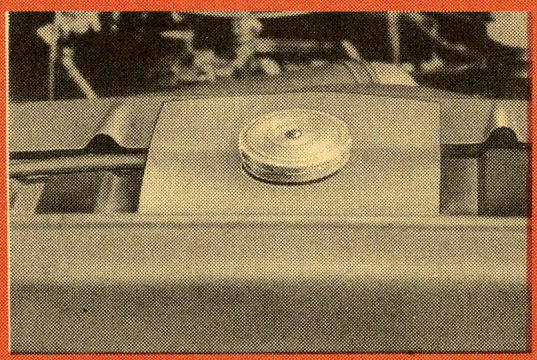


Same idea won't hurt a bit on any tank you may be driving.

You, too, can avoid damaged digits



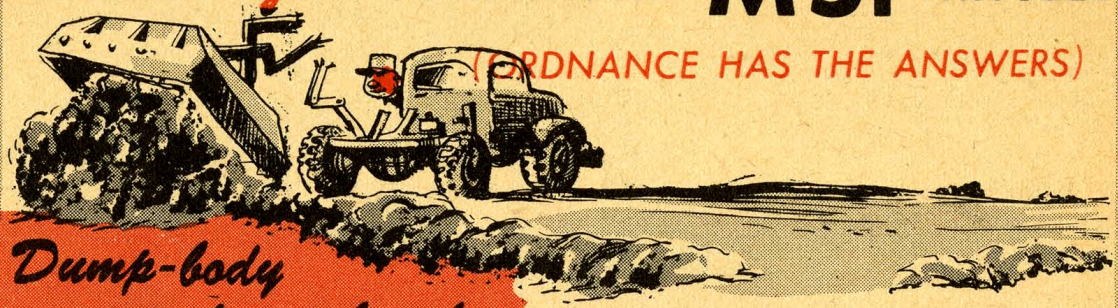
On your M37 the radiator cap is closely flanked by some sharp edges of the fan shroud. As you may have already learned the hard way, this can easily lead to frayed fingers, short tempers and loud squawks.



Guys at Raritan Arsenal find an easy way to save hide and hot breath is to cut a piece of old inner tube about 6" x 7" with a 2⅛" center hole, and fit it over the filler neck, under the cap, as shown above.

Connie Sez... DUMP YOUR M51 TROUBLES

(ORDNANCE HAS THE ANSWERS)

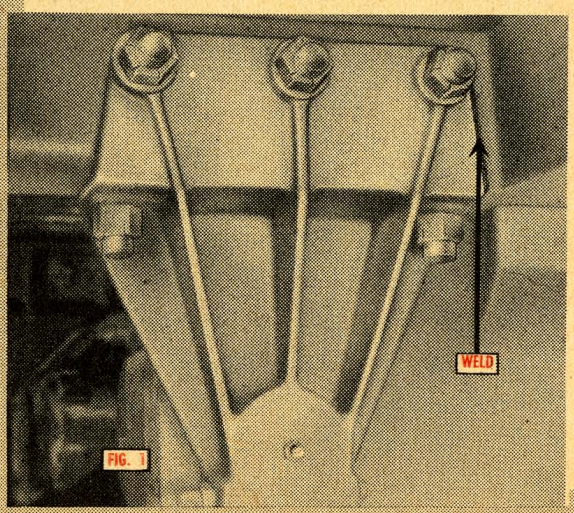


Dump-body hinge-bracket

Make the following checks often or you might be dumping more than your load, on your M51.

The dump-body hinge-bracket is bolted to a short, lengthwise piece of subframe (five places) at the rear and under the dump body (Fig. 1). This lengthwise piece is welded to a crosswise thrust-plate in front of it.

You've got to keep those bolts tight and keep a check on that weld. It seems that when the dump body starts to go up there's a sudden thrust on the hinge and the piece it's attached to. And if the weld starts to crack, she'll crack all the way and maybe shear the bolts.



If the bolts are loose it'll put a twist or strain on the lengthwise piece that'll crack the weld every time.

Then down will come body, cargo and all.

A fix is on the way to reinforce the hinges and strengthen the section that the hinges are attached to. Till then—keep a watchful eye on it.

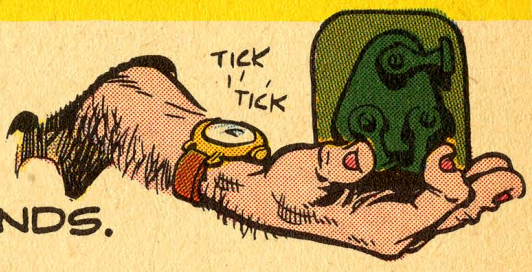
Control valve adjustment

Got troubles with your M51 dump truck hydraulic hoist? If so—hustle your chassis over to Ordnance to check the hoist's control valve.

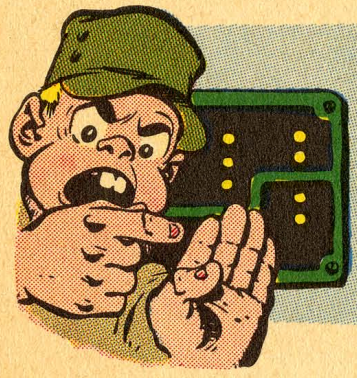
That valve is a sensitive little bugger. It has a little ball inside somewhat like a tilt ball on a pinball machine, so if you don't know the score you'll louse things up but good. Let the experts do the necessary fiddlin' whenever it comes to the hoist linkage and controls. If they aren't familiar with the adjustment procedure, they can always put their finger on TM 9-1837D, page 35, and get the exact dope.

JOE DOPE
SAFETY PRECAUTIONS FOR TANKS
..WHILE YOU ARE PICKING UP THE PIECES ...LET ME TELL YOU HOW TO AVOID ANOTHER ... MESS!
SET PARKING BRAKE BEFORE STARTING
REMEMBER YOU CAN'T START THE ENGINE TILL THE TRANSMISSION SELECTOR LEVER IS IN THE NEUTRAL POSITION.

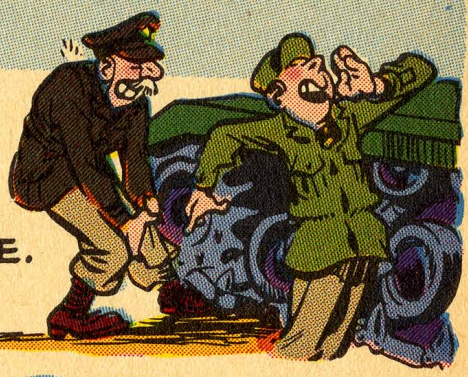
DO NOT OVER-PRIME ENGINE WHEN STARTING.



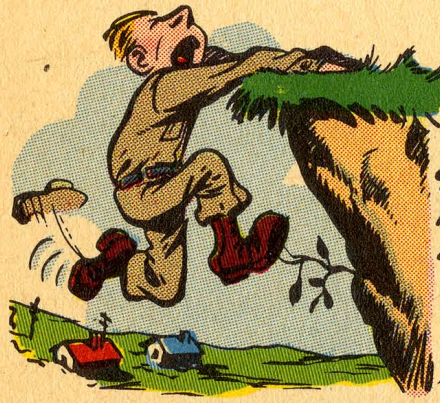
....NEVER ENGAGE A STARTER FOR PERIODS LONGER THAN 30 SECONDS.



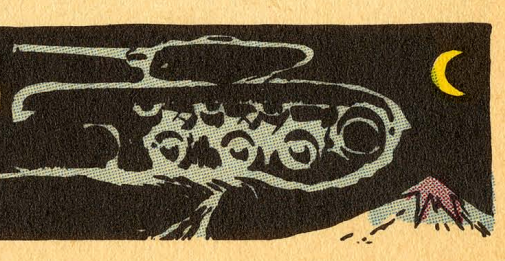
IF OIL PRESSURE GAGE INDICATES NO OIL PRESSURE...OR IF OIL PRESSURE WARNING LIGHTS FAIL TO GO OUT WHEN ENGINE IS OPERATING... STOP ENGINE AT ONCE!



NEVER MOVE A TANK IN A MOTOR PARK OR A CONFINED SPACE WITHOUT A GROUND GUIDE.



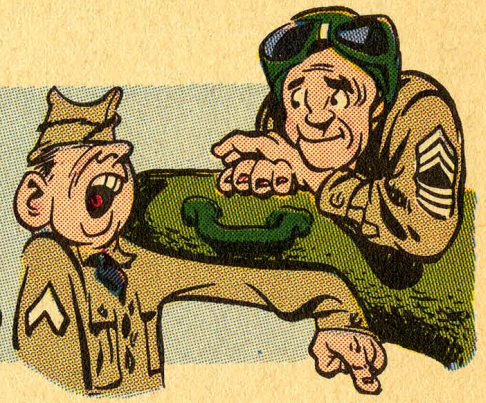
GROUND GUIDES WILL NEVER STAND BETWEEN THE TANK AND A WALL, TREE, BOULDER, OR ANOTHER TANK. A GUIDE MUST FREQUENTLY GLANCE TO HIS REAR TO AVOID TRIPPING OR STEPPING IN A HOLE....

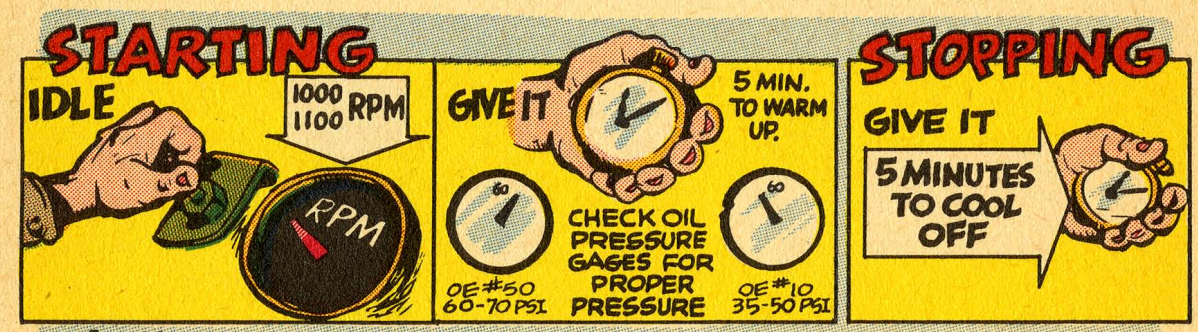


WHEN FOLLOWING A GUIDE AT NIGHT, STOP IF HIS LIGHT CAN NO LONGER BE SEEN....

WHEN BEING GUIDED, **NEVER** LET THE TANK GET CLOSER THAN **TEN YARDS** FROM THE GUIDE... AND USE ONLY **FIRST** OR **REVERSE** GEAR.

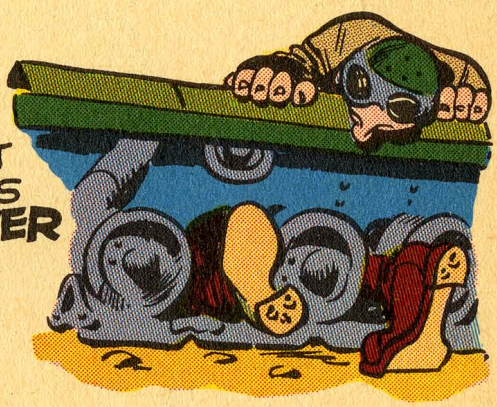
DO NOT **MOVE** A TANK WITHOUT RECEIVING AN **ORDER** FROM **TANK COMMANDER**.... (THE GROUND GUIDE IS THE TANK COMMANDER... REGARDLESS OF RANK.)

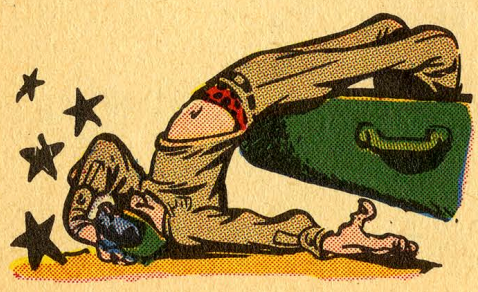




ALWAYS WARM UP A VEHICLE **PROPERLY** BEFORE STARTING TO MOVE OUT... AND COOL IT **PROPERLY** BEFORE STOPPING THE ENGINE.

ALWAYS MOUNT AND DISMOUNT OVER FRONT SLOPE PLATE, SO'S THE DRIVER CAN SEE YOU. **NEVER** DISMOUNT OVER THE TRACKS.





KEEP HIPS **BELOW** RIM OF THE HATCH OF THE CUPOLA... BE SURE HATCHES ARE **LOCKED** EITHER OPEN OR CLOSED....

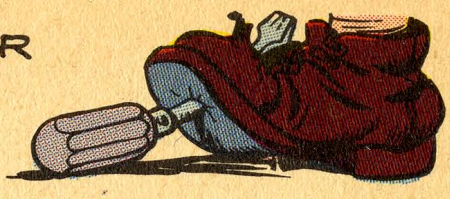
PRODUCED UNDER SPECIAL LICENSE TO U. S. DEPT. DEFENSE COPR. 1954 WILL EISNER PRODUC

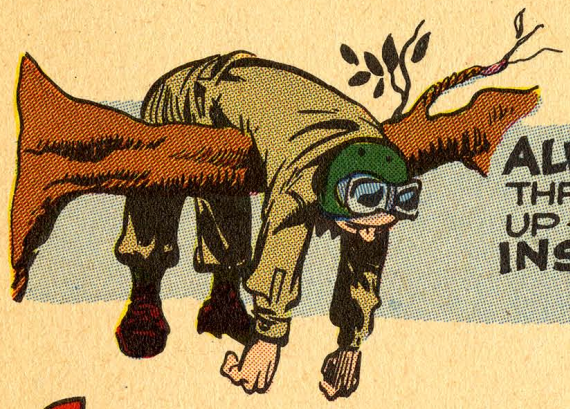
PRODUCED UNDER SPECIAL LICENSE TO U. S. DEPT. DEFENSE COPR. 1954 WILL EISNER PRODUCTIONS

UIPMENT... Take care of it

CTIONS

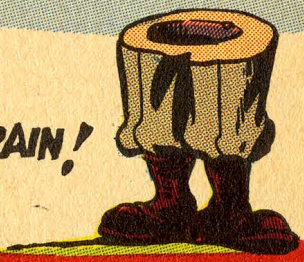
NEVER LEAVE LOOSE TOOLS OR EQUIPMENT IN A TANK....





ALWAYS DRIVE FORWARD THROUGH A WOODS—DON'T BACK UP—AND KEEP YOUR HEAD INSIDE THE HULL.

STAND CLEAR OF A CABLE WHICH IS UNDER STRAIN!



DRIVER...(WHEN IN DOUBT) STOP!
COMMANDER...(WHEN IN DOUBT...) ORDER DRIVER TO STOP!

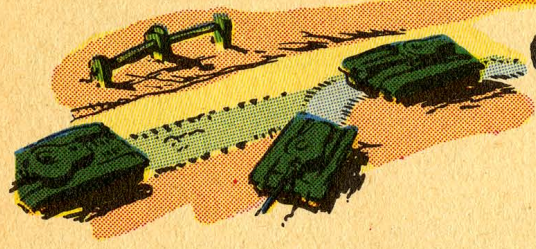
SHIFT INTO LOW GEAR WHEN YOU START UP OR DOWN HILLS.

NEVER SHIFT INTO NEUTRAL OR CUT OFF IGNITION DOWN HILLS.

EASE INTO AND OUT OF HOLES.

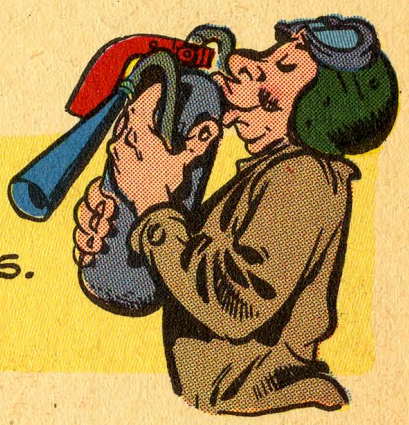
ALWAYS COME TO A COMPLETE STOP BEFORE SHIFTING INTO REVERSE.

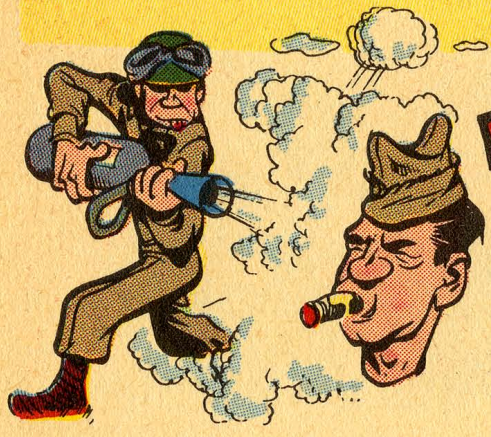
SLOW DOWN WHEN PASSING TROOPS OR OTHER VEHICLES ...A BROKEN TRACK CAN CAUSE A LOT OF HAVOC.



GET PERMISSION TO PASS IN COLUMN.

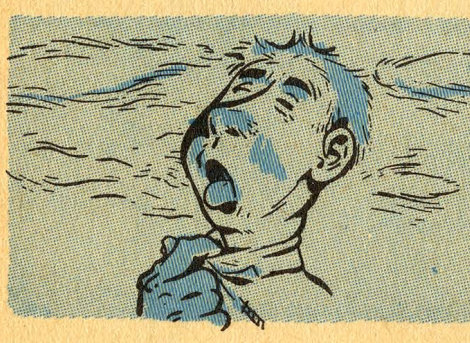
REMEMBER.... YOUR FIXED FIRE EXTINGUISHERS PROTECT THE ENGINE COMPARTMENT ONLY. DON'T GET SLOPPY ABOUT FIRE PRECAUTIONS.





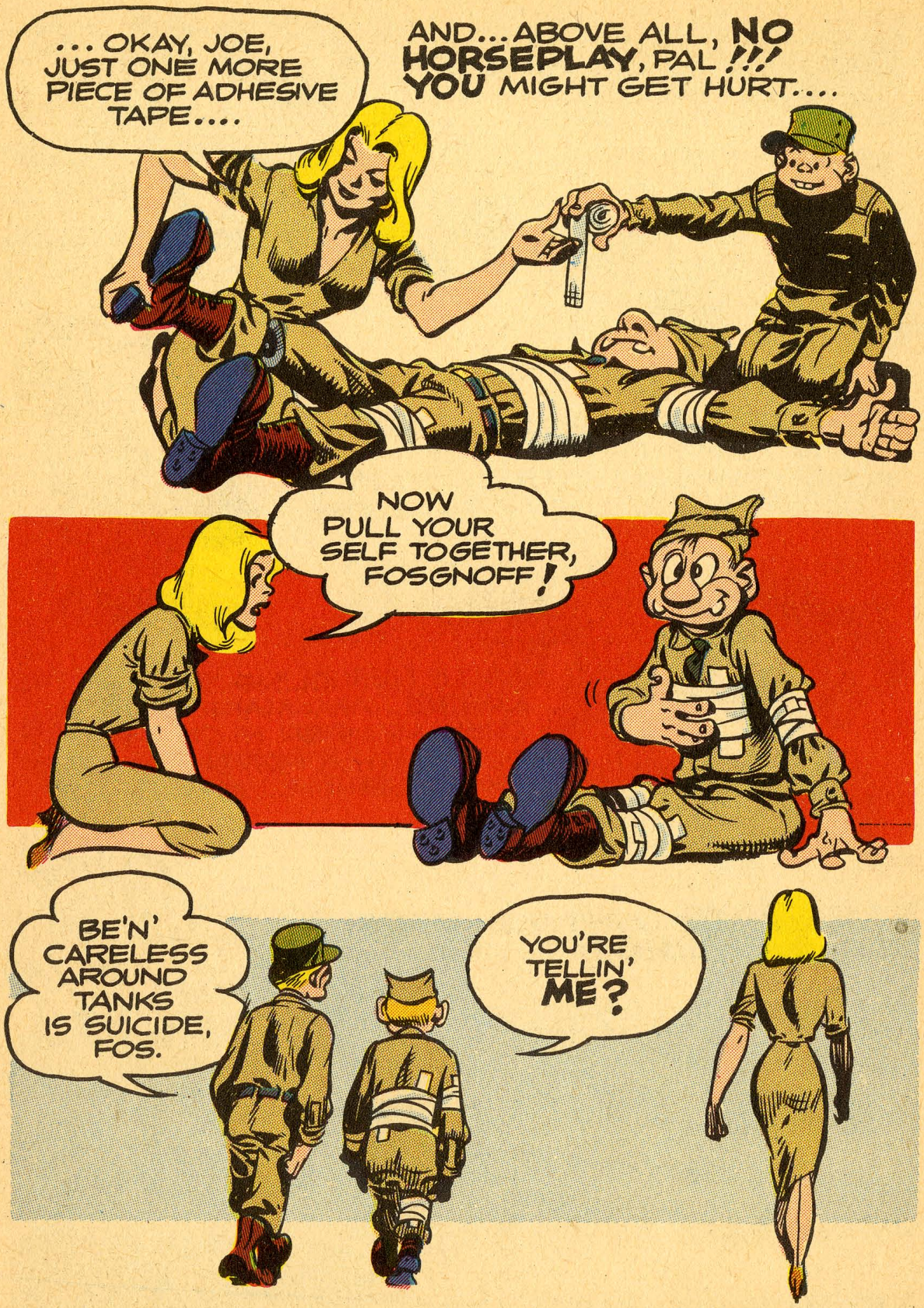
WHILE REFUELING...SHUT OFF THE ENGINE...AND MAKE SURE A CREW MEMBER IS ON THE BACK DECK WITH A PORTABLE FIRE EXTINGUISHER... AT READY!

F'GAWSAKES DON'T USE GASOLINE FOR CLEANING!!



IT'S MURDER TO RUN A TANK ENGINE INDOORS UNLESS THE PLACE IS VENTILATED.

NEVER SLEEP UNDER A TANK .....IT MAY MOVE!!!



CARE SAVES WEAR ON YOU AND YOUR EQUIPMENT

IN WITH THE NEW

Dear Half-Mast,

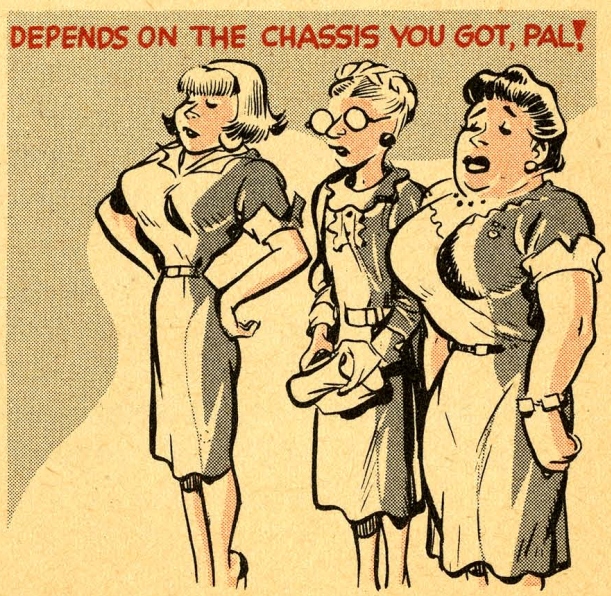
We've got an M38 with some M38A1 parts: like a sealed bell-housing and the larger starter. It looks like it came from production that way. Is there any transition model?

Pvt B. S. McN.

Dear Pvt B. S. McN.,

No, there's no special M38 transition model, and no foul-up either. Those parts you mention were added while the '38's were still coming down the assembly line. The sealed system was first used in one-hundred and two of the vehicles (Serial Nos. 51887 through 51988). Then unsealed units were used again. But it wasn't until Serial No. 53262, that the sealed stuff took over on all ¼-tonners through the present M38A1's. So you'll have some early M38 models that won't have the same features as later chassis.

Half-Mast

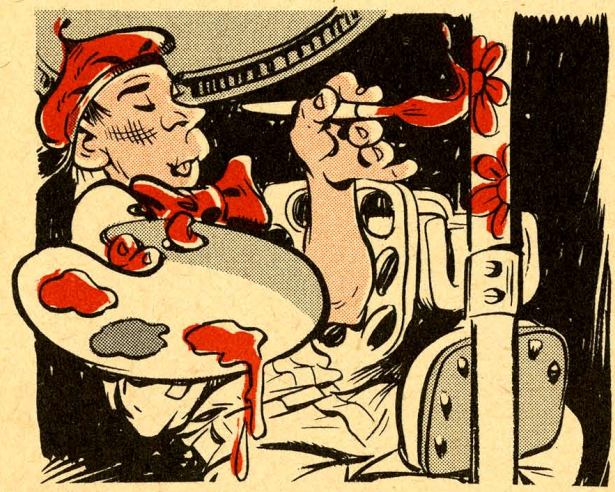


WHITE IS THE COLOR

Dear Half-Mast,

I'm unable to locate information and authority at this post for painting the inside of a turret on a tank white. Can you give me a clue where to look?

MSgt L. F. W.



Dear MSgt L. F. W.,

The basic authority you're looking for is in MIL-V-3329 (General Requirements For Military Specifications for Vehicles, Combat, Self-Propelled and Towed) which is mainly for manufacturers and rebuild people.

As for repainting, the basic specifications still apply because all you're doing is bringing the tank up to the same specs. It's like when you break a window. Authority isn't needed to put in a new one—just replace it with a similar type.

When doing a repaint or touch-up job, be sure you're using the correct "white" paint. Use only Enamel, synthetic, gloss (TT-E-489). Engineer Stock No. 52-E-6022-240 will get you a quart and 52-E-6022-250 a gallon.

Half-Mast

BAFFLING SOLUTION

Dear Half-Mast,

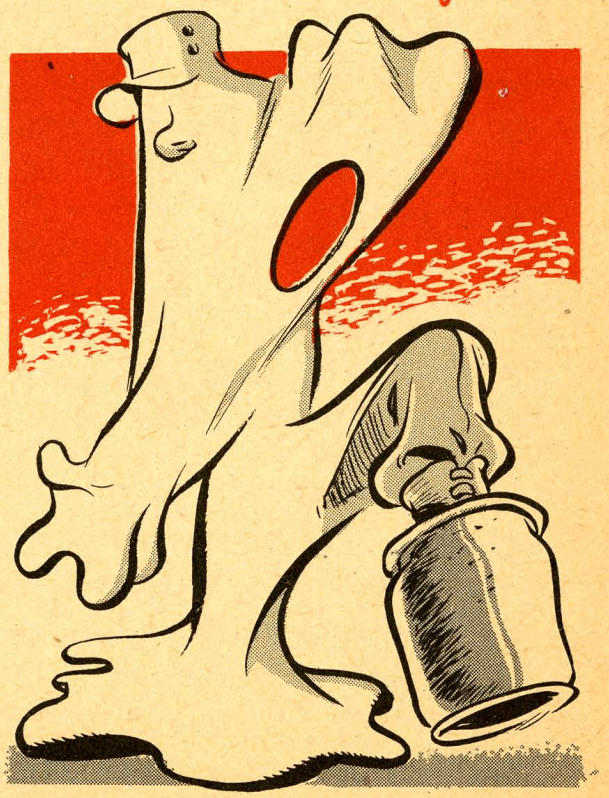
A shield to protect the M135's spare tire from lube flung out by the transfer case's forward U-joint, like TB 9-819A-10 says, is swell. But how about another where the rear U-joint slings its oil? The stuff lands on the spare and is cooked on by the hot muffler. Another shield to fit the tire's shape could save it.

Pvt J. D. M.

Dear Pvt J. D. M.,

Too many baffles can be baffling. The better solution may be to cut out the slinging by using the right amount of grease and wiping off any excess. That way the rear U-joint should keep its lube to itself. It's usually the grease-happy guy who gums up the works.

Half-Mast



PAINT ON RUBBER-COVERED CABLES

Dear Half-Mast,

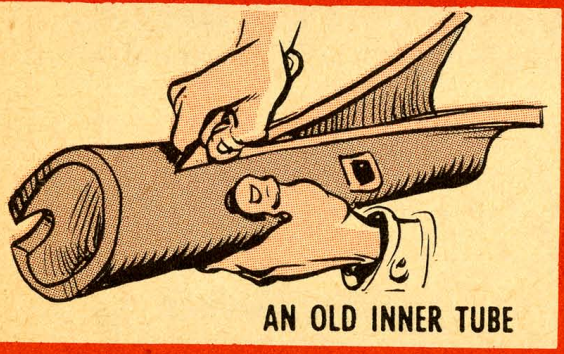
Maybe you can help me. Electric cables on gun carriages and other type trailers are made secure by clamps so they aren't moved when a paint job is done on the vehicle. The overspray gets on them and after a time and a few paint jobs, these cables are painted too. It's inspection practice to mark this deficiency but commanders and instructors are always asking me for the authority for it. Is there any written word that says cables must be free of paint?

WOJG H. I. G.

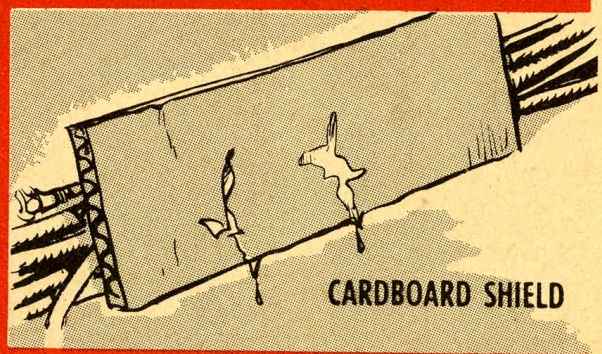
Dear WOJG H. I. G.,

Might as well stop your search . . . near as we can figure it, there's never been anything published that says you have to keep paint off cables or you get gigged. Just like there not being a written law that you've gotta pull your windows down when it rains . . . just good common sense. TM 9-2851 does say to mask anything that shouldn't be painted but says nothing specific in the present edition. It's good practice not to let oil base paint get on rubber at any time . . . likely to cause it to crack.

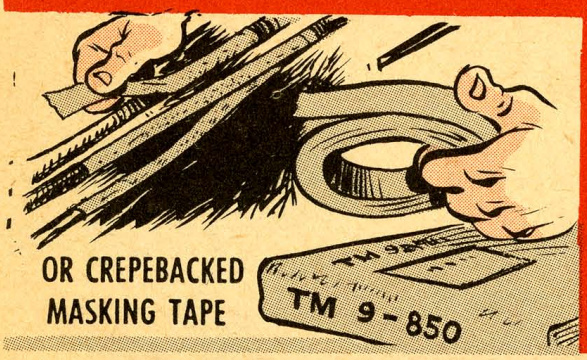
SOME GOOD COVER-UPS FOR NEAT SPRAY-PAINTING



AN OLD INNER TUBE



CARDBOARD SHIELD



OR CREPEBACKED MASKING TAPE

BEST IDEA OF ALL . . . BE CAREFUL

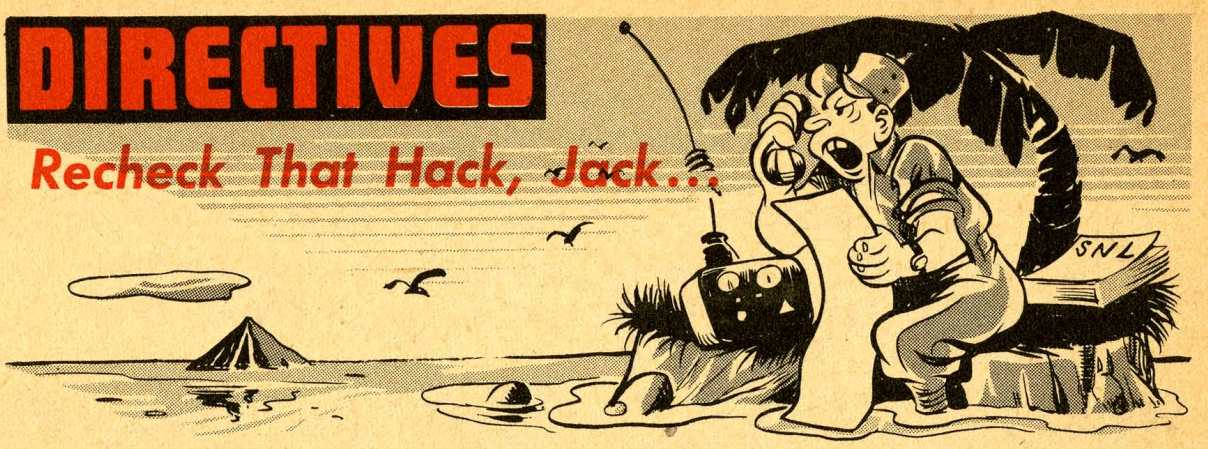
USE WHATEVER IS MOST HANDY . . .

So . . . try it anyway you like but it looks as if you're just going to have to limp along without printed word and nothing to back it up but just good old-horse sense. Some design engineers have said it's OK to paint if it doesn't bother function. That's all we can tell you outside of lettin' you know how to keep it off.

Half-Mast

DIRECTIVES

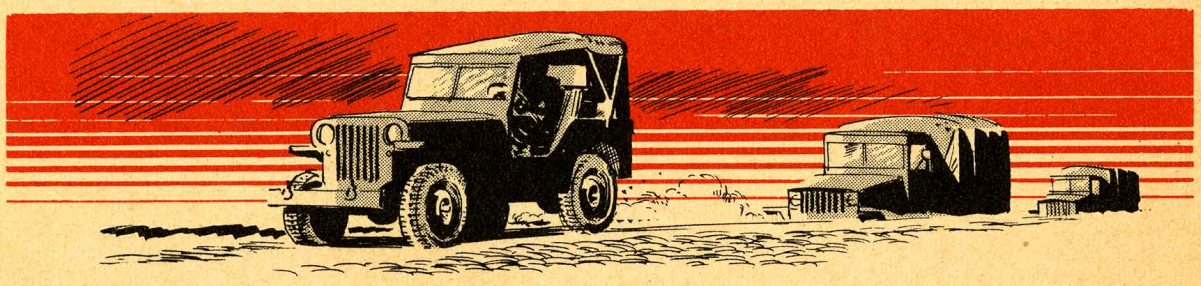
Recheck That Hack, Jack...



Time rolls on... and the TB's, MWO's, LO's—and what have you—roll in. Hard to keep up with? Mebbe. But they keep the wheels rolling—which is what gets you there and back.

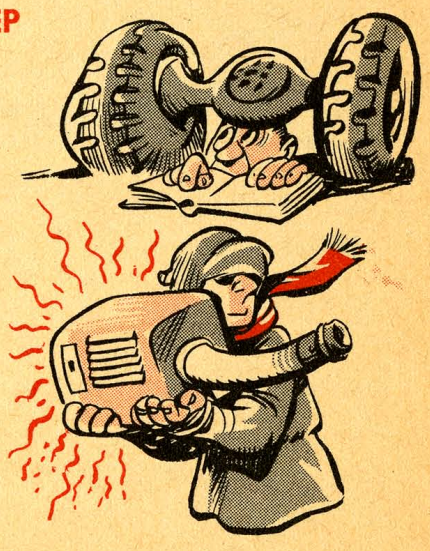
In PS #13 a list of clues was whipped together as a guide to the best sources of info for getting the most from your rolling stock. Dig out your copy of #13 and tack on the following list, and your guide will be up to date.

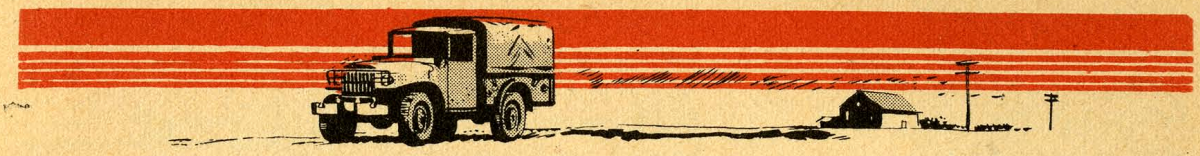
(And don't forget to check the Perpetual Index of each issue, page 3c, to keep yourself on the ball with PS articles.)



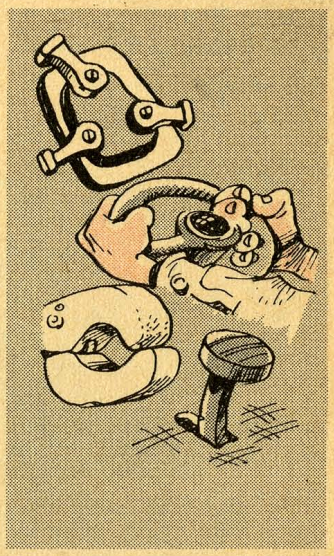
M38 and M38A1, UTILITY, ¼-ton 4x4 WILLYS JEEP

TM 9-804 chng 3: M38	Tire Pressure
TM 9-804A chng 1: M38A1	Tire Pressure
Ord 8 SNL G-249 Sec 9	Winterization M38
TB Ord 473	Prep for 105mm Gun Mount
TB Ord 526	24-volt Personnel Heater
TB 9-804-5	Thermostat Retainer
TB 9-804-7	Vent Line Clip
TB 9-804-8	Transfer-case Noise
TB 9-804-9	Trailer Coupling Receptacle
TB 9-804-10	Engine Hood Hazard
MWO Ord C77-W1	Rifle Lock Assembly
MWO Ord G740-W7	Front Hub Oil Seals





M37, ¾-ton, 4x4 DODGE CARGO TRUCK

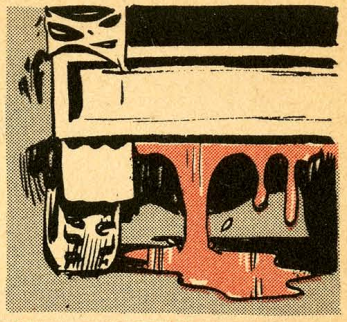


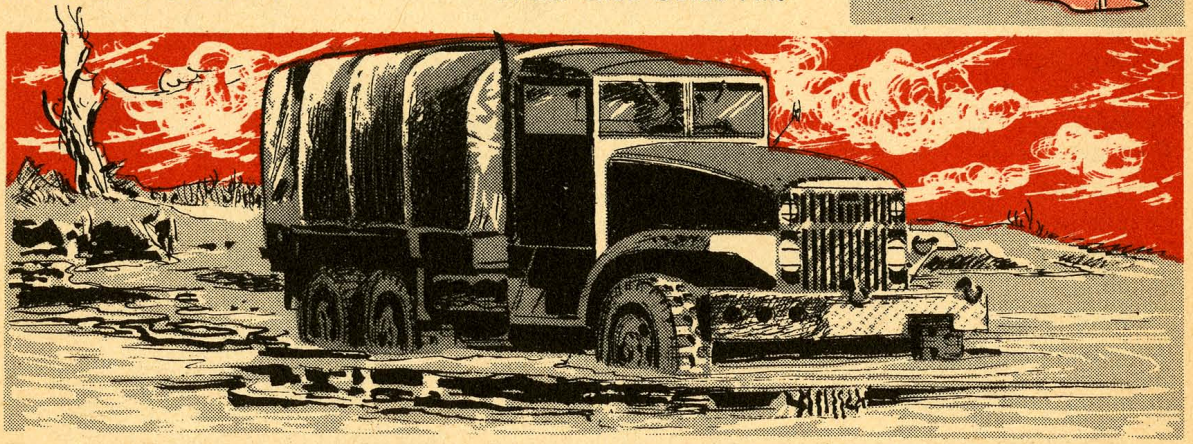
TM 9-8031-2	Power Train
TB Ord 445	Fuel Tank Pressure
TB Ord 499	Stop Light Switches
TB Ord 526	24-volt Personnel Heater
TB 9-840-3	Battery-post Insulators
TB 9-840-5	Battery Cable Assembly
TB 9-840-6	Correct Hard Steering
TB 9-840-7	Starter Push Rod
TB 9-840-8	Brake Line
TB 9-840-9	Pintle Hook & Tool Rack
TB 9-840-11	Radiator Support Bracket
TB 9-2855-7	Hard-top Closure Kit
MWO Ord G741-W2	Air Cleaner Elbow

M34, 2½-ton, 6x6 CARGO TRUCK (REO & STUDEBAKER)

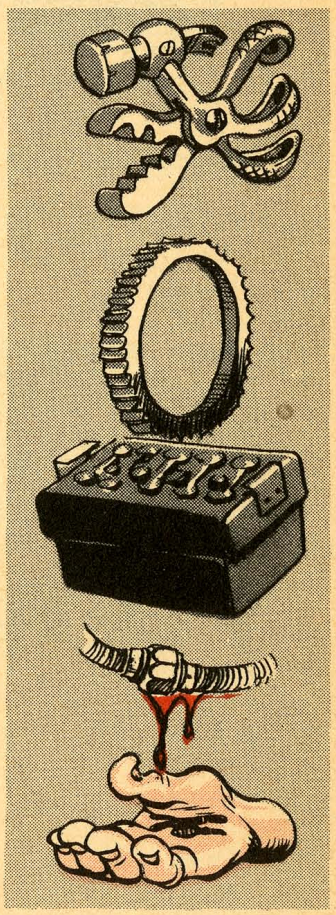
TM 9-819 chng 2	Spring Seats
SNL G-249 Sec 12	Winterization M34
TB Ord 444-9	Field Shop Set No. 1
TB Ord 445	Fuel Tank Pressure
TB Ord 470	Crankcase & Vent Valve Ass'y
TB Ord 492	Tire Pressure
TB Ord 499	Stop Light Switches
TB Ord 500	Welded Tie-rod Ends
TB Ord 511	Toe-in Settings
TB Ord 520	Battery Filler Caps
TB Ord 526	24-volt Personnel Heaters
TB Ord 532	Shearpin Replacement
TB 9-801-11	Faulty Governor
TB 9-819-7	Winch Shear Pin
TB 9-819-8	Wiper Motors (Fording)
TB 9-819-12	Hood Safety Catch
TB 9-819-13	B/O Marker Wiring Harness
TB 9-819-14	Fuel Tank Filler Cap
TB 9-819-16	Vibration Damper
TB 9-819-17	Air Tube Support Clamp
TB 9-1819B-2	Steering Knuckle Stop Screw
TB 9-1819B-3	Front Axle Oil-seal
TB 9-2855-10	Hard-top Closure Kit

MWO Ord A55-W18	Modify Truck Mount
MWO Ord G742-W1 chng 1	Battery Hold-down Frame
MWO Ord G742-W2 chng 1	Reinforce Cab Assembly
MWO Ord G742-W3 chng 2	Dbl Overrunning Clutch
MWO Ord G742-W7	Brake Case Caution Plate
MWO Ord G742-W8	Heater Kit Defrosters
MWO Ord G742-W9	Replace Fuel Filter
MWO Ord G742-W10	Cargo Body Drainage
MWO Ord G742-W11	Brake Shoe Guide Pins

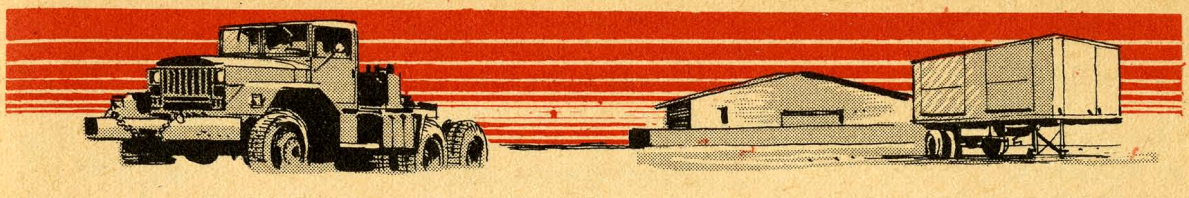




M135, 2½-ton 6x6 CARGO TRUCK (GMC)

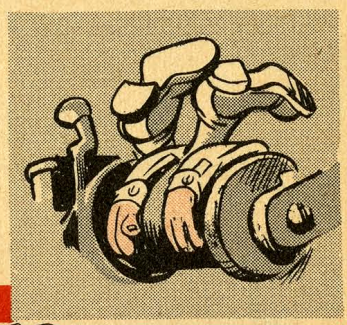


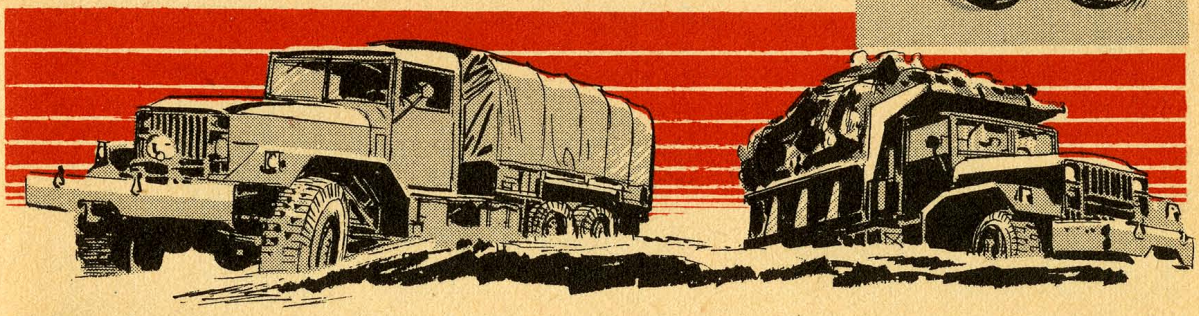
Ord 6 SNL J-16 Sec 42	Special Tool Sets
Ord 9 SNL G-749 chng 2	
Ord 9 SNL G-749 chng 3	
TB Ord 492	Tire Pressure
TB Ord 499	Stop Light Switches
TB Ord 520	Battery Filler Caps
TB Ord 526	24-volt Personnel Heaters
TB Ord 530	Flywheels, Torus Covers
TB Ord 532	Shear Pin Replacement
TB 9-801-11	Correct Governor
TB 9-819A-3	Tie Down U-bolts
TB 9-819A-5	Pioneer Tools Stowage
TB 9-819A-6	Starter Hand Lever
TB 9-819A-7	Hood-catch Bracket
TB 9-819A-8	Torque Specifications
TB 9-819A-9	Replace Storage Battery
TB 9-819A-10	Spare Tire Shield
TB 9-819A-11	Upper Tail Pipe Outlet
TB 9-819A-12	Grease Leakage
TB 9-2855-15	Personnel Heater Kit
TB 9-2855-16	Power Plant Heater Kit
TB 9-2855-17	Hard-top Closure Kit
MWO Ord G749-W4	Trans Oil-filler Tube
MWO Ord G749-W5	Regulator Valve Spring
MWO Ord G749-W9	Winch Caution Plate
MWO Ord G749-W10	Front Clutch, Downshift
MWO Ord G749-W12	Trans Actuating Lever



M52, 5-ton 6x6 TRUCK-TRACTOR (DIAMOND-T)

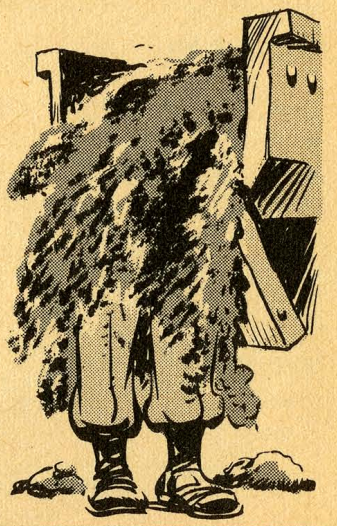
TB Ord 500	Welded Tie-rod Ends
TB Ord 526	24-volt Personnel Heaters
TB 9-837-3	Reinforce Front Fender
MWO Ord G744-W3	Winch Roller Tie-rod
MWO Ord G744-W4	Oil Level Hole

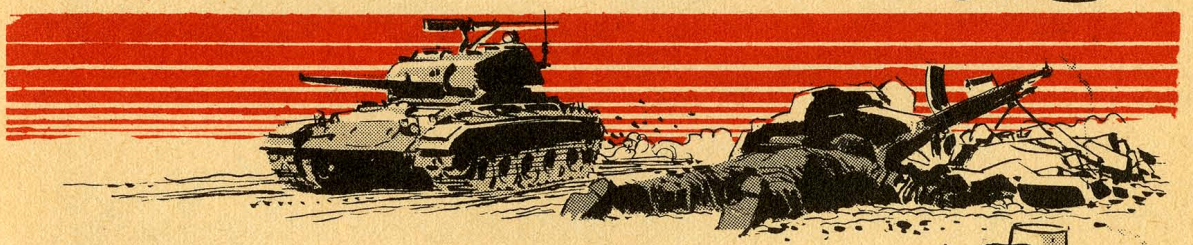




M41, 5-ton CARGO TRUCK 6x6 (IHC)
M51, 5-ton DUMP TRUCK 6x6 (IHC)

TB Ord 500:(M51)	Welded Tie-rod Ends
TB Ord 526	24-volt Personnel Heaters
TB Ord 532	Shearpin Replacement
TB 9-837-2	Tailgate Wing-chain Hook
TB 9-837-3	Reinforce Front Fender
TB 9-2855-10	Hard-top Closure Kit
MWO Ord G744-W3	Winch Roller Tie-rod
MWO Ord G744-W4	Oil Level Hole
MWO Ord G744-W5	Dump Body Thrust Blocks





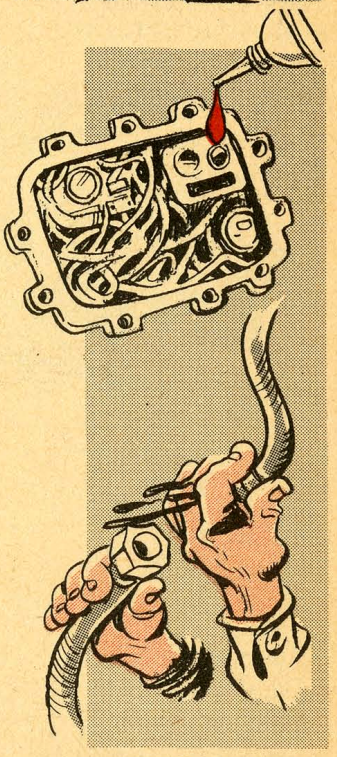
LIGHT TANK M24, 75mm GUN

TB Ord 526	24-volt Personnel Heater
TB 9-2855-11	Personnel Heater Kit
TB 9-2855-12	Power Plant Heater Kit

MEDIUM TANK M4A3, 75mm GUNS M2 & M3

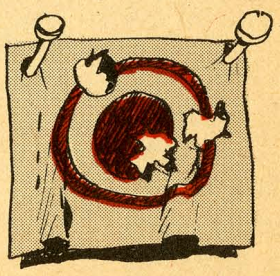
TB Ord 526	24-volt Personnel Heaters
TB 9-2855-13	Personnel Heater Kit
TB 9-2855-14	Power Plant Heater Kit

MEDIUM TANKS M46 & M46A1, 90mm GUN M3A2



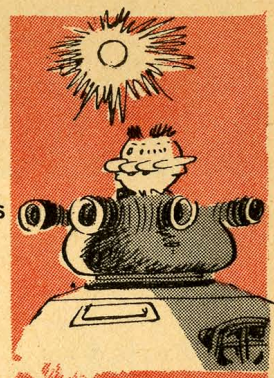
TB Ord 491	Control Box Lubrication
TB Ord 493	Magneto Testing Procedure
TB Ord 494	Bevel Gears Lubrication
TB Ord 498	Junction Box Leakage
TB Ord 508	Trans Oil Pressure Gage
TB Ord 510	Low-oil-pressure Light
TB Ord 515	Trans Control Valve
TB Ord 516	Nylon Bearings
TB Ord 526	24-volt Personnel Heater
TB 9-718-9	Trans Oil-pressure Plugs
TB 9-718-10	Finger Lift Control
MWO Ord G1-W37	Replace Fuel Lines
MWO Ord G1-W38	New Intake Manifold
MWO Ord G1-W39	Oil Cooler Line Clamp
MWO Ord G244-W5	Obstruct Muffler Glow
MWO Ord G244-W26	New Engine Roof Shroud
MWO Ord G244-W30	Polaroid Sight
MWO Ord G244-W31	New Standard Pintle
MWO Ord G244-W32	Replace Ballast Lamps
MWO Ord G244-W35	Replace Servo Lever Shafts

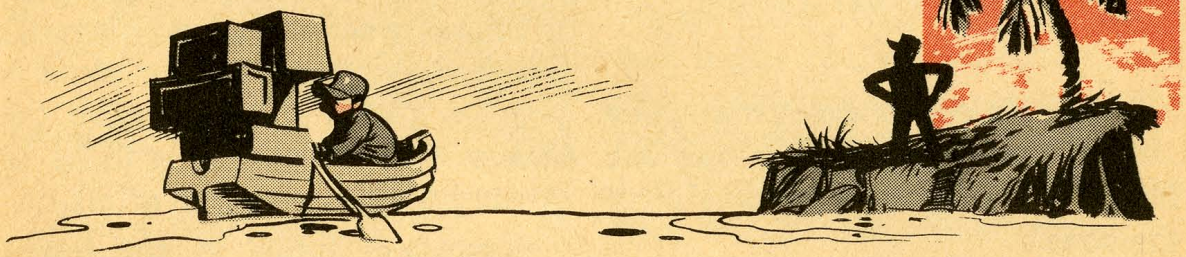
MEDIUM TANK M47, 90mm GUN T119M1



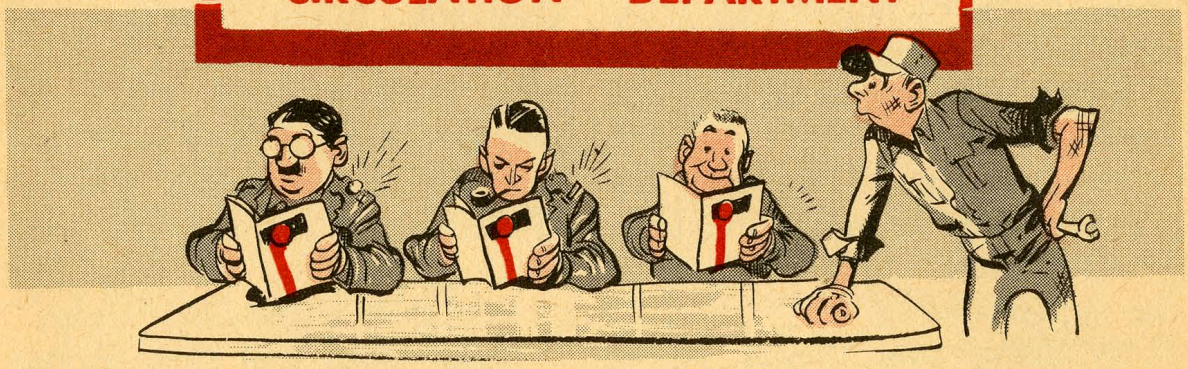
Training Circular No. 36	Tank Gunnery M47
TB Ord 489	Final-output-flange seal
TB Ord 491	Control Box Lubrication
TB Ord 494	Bevel Gears Lubrication
TB Ord 498	Junction Box Leakage
TB Ord 508	Trans Oil Pressure Gage

TB Ord 510	Low-oil-pressure Light
TB Ord 515	Trans Control Valve
TB Ord 516	Nylon Bearings
TB Ord 526	24-volt Personnel Heaters
TB 9-718A-7	Turret Traverse Gear
TB 9-718A-8	Turret Performance Requirements
TB 9-1730E-1	Turret Trouble-shooting Kit
MWO Ord G1-W37	Replace Fuel Lines
MWO Ord G1-W38	New Intake Manifold
MWO Ord G1-W39	New Oil Cooler Line Clamp
MWO Ord G262-W2	Final Drive Output Shaft
MWO Ord G262-W5 chng 1	Replace Radio Guard
MWO Ord G262-W6	Ballast & Relay Jumper
MWO Ord G262-W7	Correcting Speedometer
MWO Ord G262-W8	Trans Servo Lever Shafts





CIRCULATION DEPARTMENT



Does your unit get enough copies of PS? Would your cousin in the 136½ Mess-Kit Repair Squadron like to get it? If you have any question concerning who gets PS and how many, see the distribution formula printed on page 857. If your outfit isn't included, check your AG publications officer or section.

You can tell him that the official circulation representative for PS Magazine is the Adjutant General's Office. There is a definite formula for distribution of PS to nearly all military units through normal channels, and AG can help you.

For you who still need back issues or that special issue, PS #14 (on the light tank series), PS'll supply you as long as they hold out.

ARMAMENT & AMMUNITION

.30 and .50 Caliber SLUG SPITTERS

YOU CAN'T GET MORE—
(They're Giving All They've Got)

When you're spraying with your .30 cal. machine gun, it throws out about 10 slugs a second. Pretty fast, eh?

Some hot-rodders think it's kind of slow and get the idea she needs a stiffener in the buffer-tube. They think that this stiffening will make 'er kick out more than 600 rounds a minute.

They're wrong, but they try sticking some shims or maybe a penny between the buffer disks in the buffer-housing.

By doing this, they're taking away the cushion provided for the metal-to-metal contact of the bolt and the buffer-plate. Taking away that cushion is like ramming a jeep into a stone wall—no give—plenty of bounce—no jeep.

When the bolt slams back it strikes the buffer-plate. A lot of little fiber cushions called buffer disks are behind the plate.

Some machine guns have 22 buffer disks, some 12 and some 8, plus or minus one, to absorb the shock. These disks have to be in good condition and free of oil.

There's a screw in the buffer tube to adjust the amount of cushioning given by the disks. The set adjustment is not more than one full thread of the screw sticking out of the buffer tube. The screw can't be in the tube any more than that one thread either. The set adjustment is to keep you from packing the disks too tight and ruining their cushioning power.

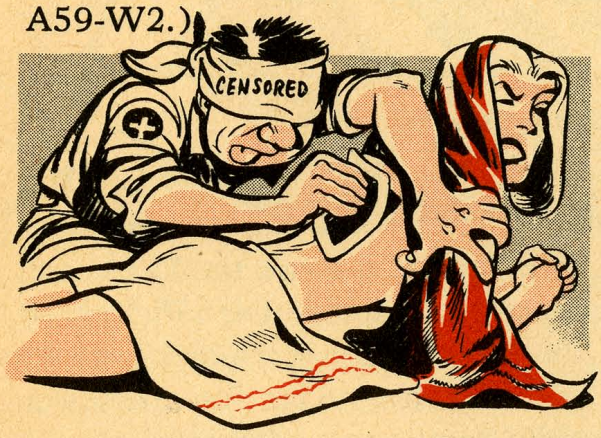
These disks and their adjustment give you a gun that'll fire as fast as she can and keep on firing.

You wouldn't sell your gun for a penny. Why ruin it with one?

MAKE THOSE DECALS STICK

Like we were telling you back in PS #15, if you have one of the .50 cal. heavy barrel machine guns that have been modified, you gotta

make sure it has a warning decal-comania on the receiver top plate. That's to give everybody and his cousin the clue that the correct way to adjust headspace is told in Change 4 to FM 23-65. (These guns were modified under MWO Ord A39-W13 and MWO Ord A59-W2.)



A new decal label is now available through your normal publications supply channels. It is DA Label No. 19 (1 Oct 53). It replaces the label of the same number dated 1 Feb 53. The new label includes the reference to Change 4 to FM 23-65, which is just where you'll find how to adjust the headspace. (You can also see it in PS #13 beginning on page 572.)

There's a catch in the deal, though. Lots of guys made a beef about those other labels. Claimed they couldn't make 'em stick to the receiver top plate.

Well, there's a good chance they did have trouble. Step in a little closer while we tell you the secret.

The reason it won't stick too good is that your receiver top plate probably has been given an oil-dipped phosphate finish. The way to get around it is simple—clean the surface with solvent and let dry—then apply a coat of thin lacquer to the spot you want. After that, your decal should stick with you like a girl's kid brother.

The one you want is DA Label No. 19 (1 Oct 53). Your authorization for it is DA Circular 110 (9 Nov 53).

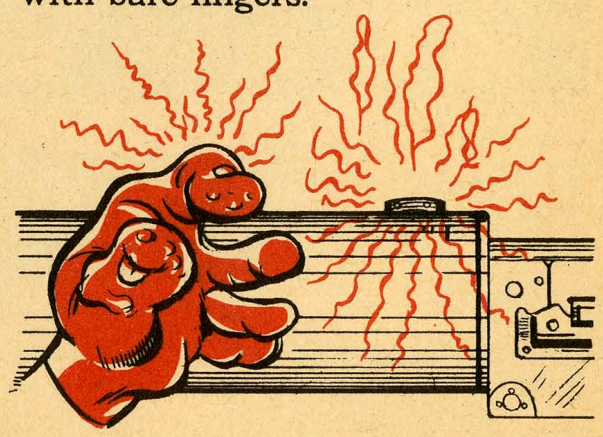
ALL-BRASS PLUGS GET HOT

Spittin' slugs from your .30 cal. water-cooled machine gun makes cool water hot, and the front and rear water-jacket plugs get "hotter-than-the-hinges."

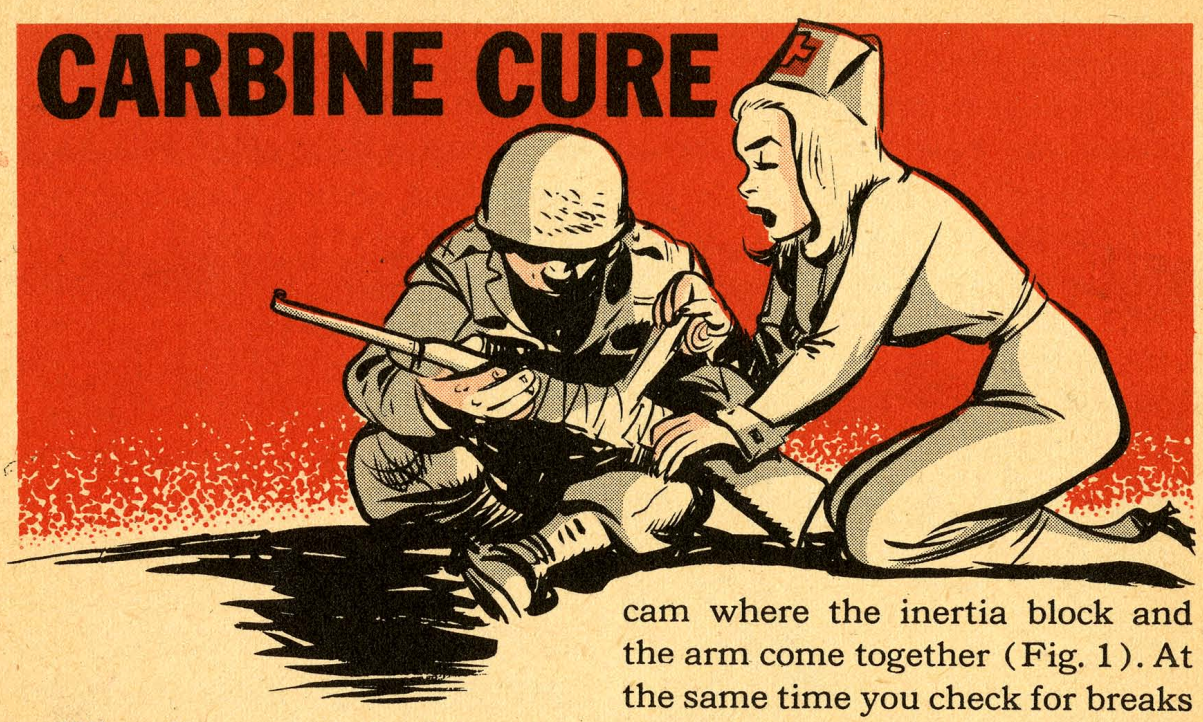
Fiber insulation is pinned to these plugs to keep you from gettin' hot fingers if you have to take the plugs out.

Sometimes the insulation breaks off. If you can't get a replacement plug (Stock No. A005-6017558), file the pins down and use the all-brass plug.

Have a pair of pliers handy—you'll need 'em. With no insulation, that all-brass plug's goin' to be all-fired hot if you try to take it out with bare fingers.



CARBINE CURE



When it comes to checking your .30 cal. carbine you're busier than a one-armed paper hanger with the itch.

You know that some day it could be your life insurance—no gambling here.

You eagle-eye the operating slide for cracks around the operating-cam where the inertia block and the arm come together (Fig. 1). At the same time you check for breaks around the hole for the operating-slide stop.

Peel your eye on the bolt for cracks around the right hand locking lug (Fig. 2).

No sireeee—you're not the guy to gamble. If these parts are cracked or broken, turn 'em into supply for new ones.

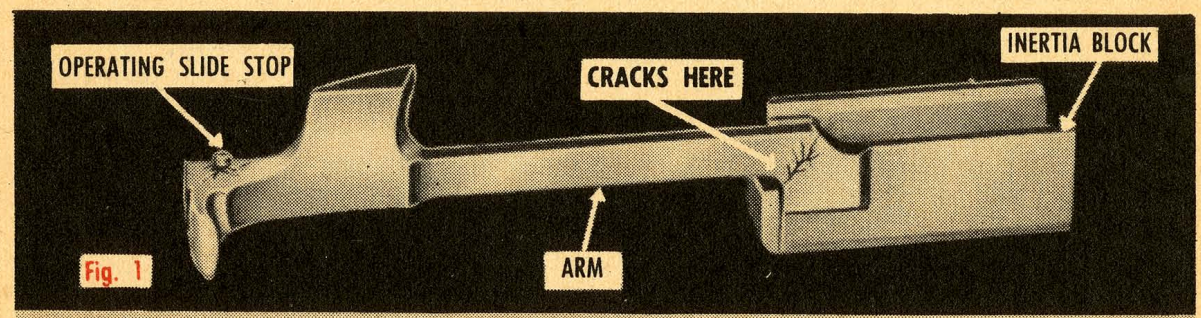


Fig. 1

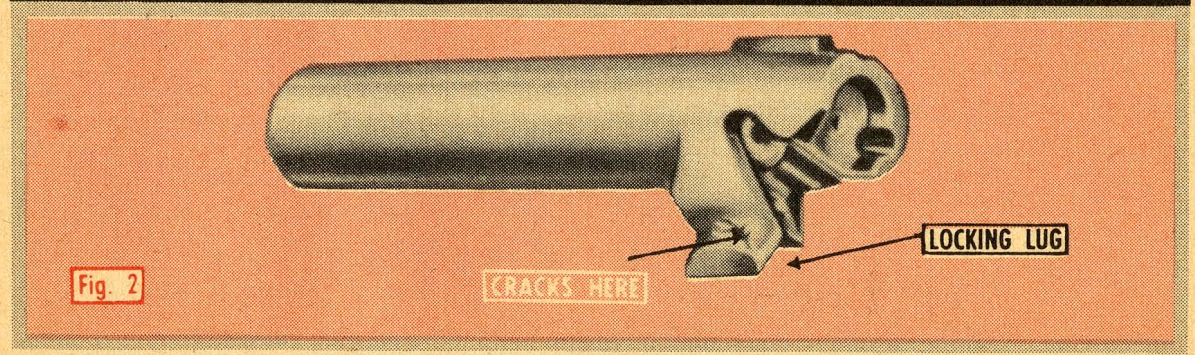


Fig. 2

DIRTY HEADS CAUSE TROUBLE

It's all in the head—keep it clean.

After you've used a grenade-launcher, take a look-see for dirt or carbon under the gas-cylinder lock-screw head of your M1 rifle. That head is a part of a valve in the lock-screw (Fig. 1). It seats itself like the valve in the head of an engine.

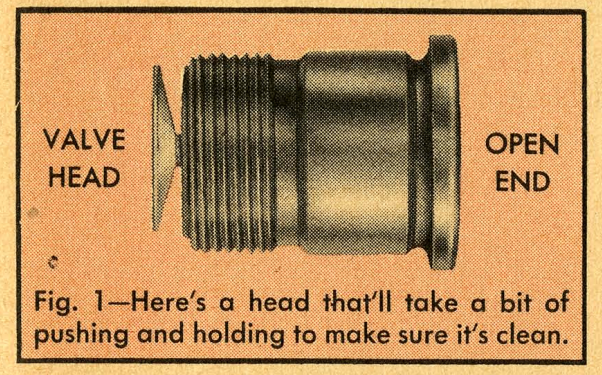


Fig. 1—Here's a head that'll take a bit of pushing and holding to make sure it's clean.

When you stick a grenade launcher on your rifle, a stud on the launcher opens the valve in the lock-screw. This lets some of the gas escape from the front of the rifle when a grenade is fired.

Part of the gas escapes from the front of the rifle and prevents full recoil of the operating rod and gives you a single-shot weapon for grenade launching. It also prevents parts slamming back too hard in recoil and damaging them when you launch a grenade. But it does give dirt and carbon a chance to get under the valve-head.

Dirt or carbon under the head (Fig. 2) will distort the head and crack it. You've got a lotta gas pressure in there. Improper seating or cracks will give you a single-shot when you need a semi-automatic rifle.

To get at the head, stick the screw-driver end of your combination tool in the open end of the lock-screw and push against the valve stem. Then give it a going over with your old tooth brush and a little bore cleaner.

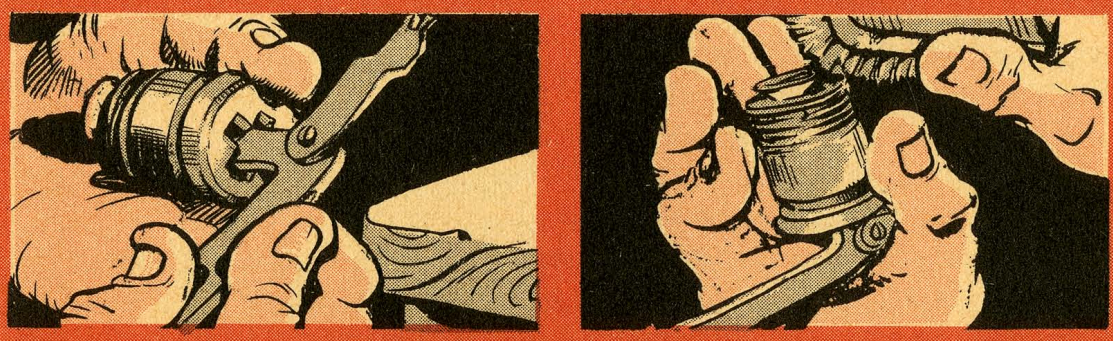
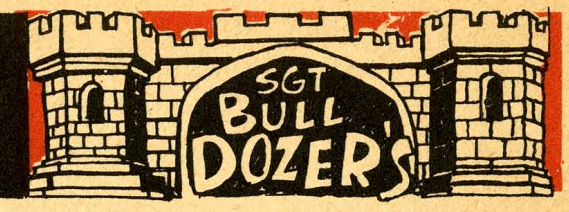
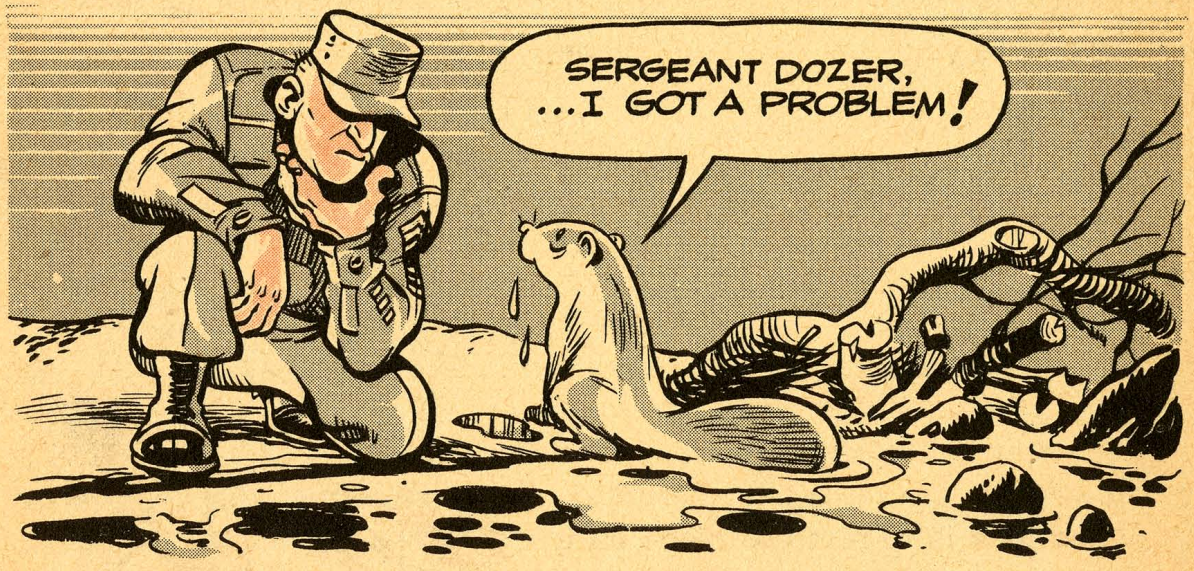


Fig. 2—A tooth brush moistened with rifle bore cleaner will move gook from the head.

ENGINEERS





DOZER DO'S

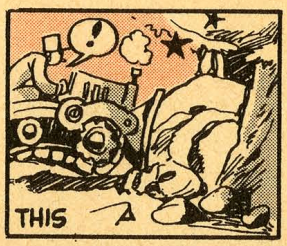
There are tricks in every trade, and bulldozing is no exception. Here are a few, from an old hand, you'll find worth trying on your pusher.

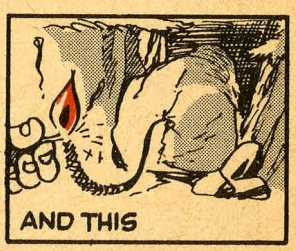
THE ROCKY ROAD

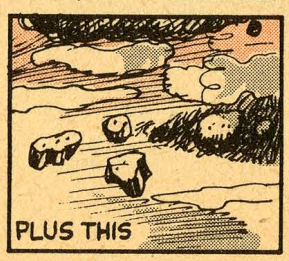
Dozer doers who tote over big rocks, usually give their blades, end bits, tracks and rollers an awful walloping. You'd best plow 'em out first. If your dozer can't get 'em out, use a rooter or blast powder, and you'll soon have those rocks small enough for the dozer's diggings.

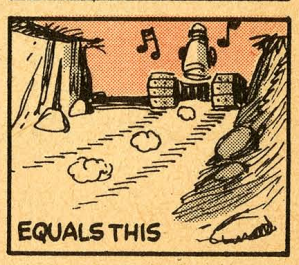
Unless it's bed rock that's staring you in the face, of course. For that kind of stuff, push a dirt fill over the granite until you've finished nosing material over its top.

And here's something else to think about on rocky ground. When you keep your throttle wide open and blow a cloud of smoke, you cut down your tractor's push-power. But if the throttle's cut down, you'll be able to shove more stuff at a time—especially on a rock pile.



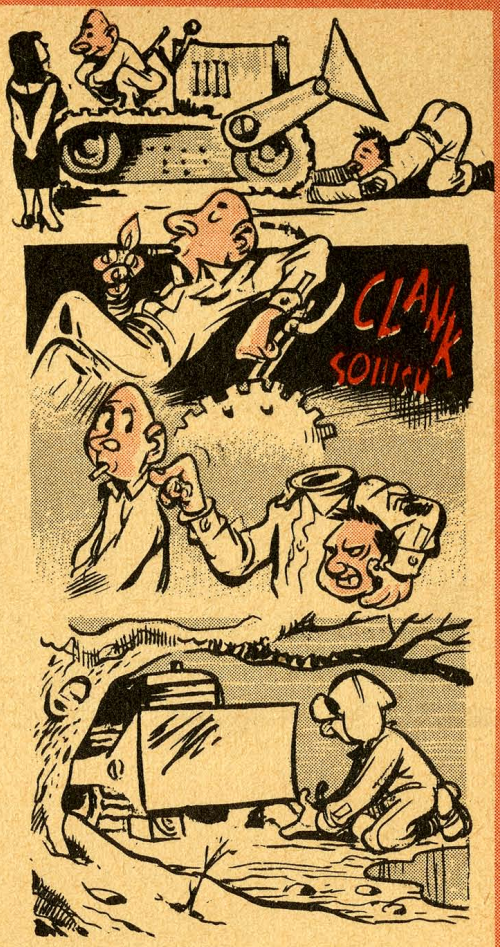




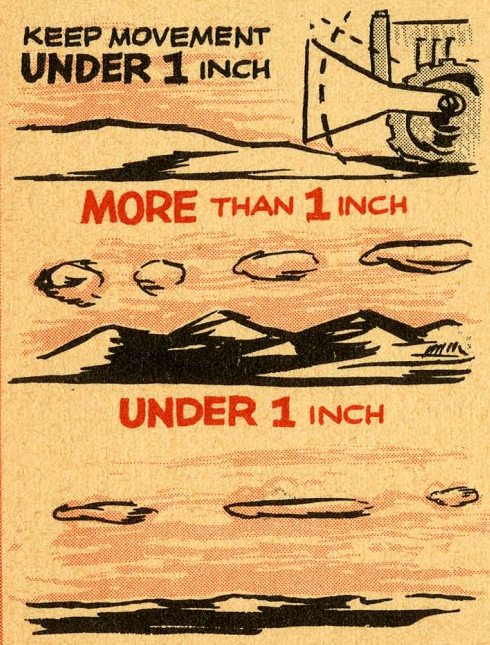


DOWN, BOY, DOWN

The dirtiest foul-play is getting rid of somebody's dandruff the hard way. This can happen should you leave your dozer with its blade hanging in the air. Then, while one of your buddies is looking under the blade, some nitwit may decide to hang his coat on the control lever, releasing the blade with a bang. But take heart, your buddy could be lucky enough to only put his foot in it. Oops!



Whenever you leave your dozer, lower the blade to the ground. A good idea is to rest the blade on a piece of wood or a small stone so that if the ground is muddy and the weather cold, you won't find your blade frozen solid when you get back.



ON THE LEVEL

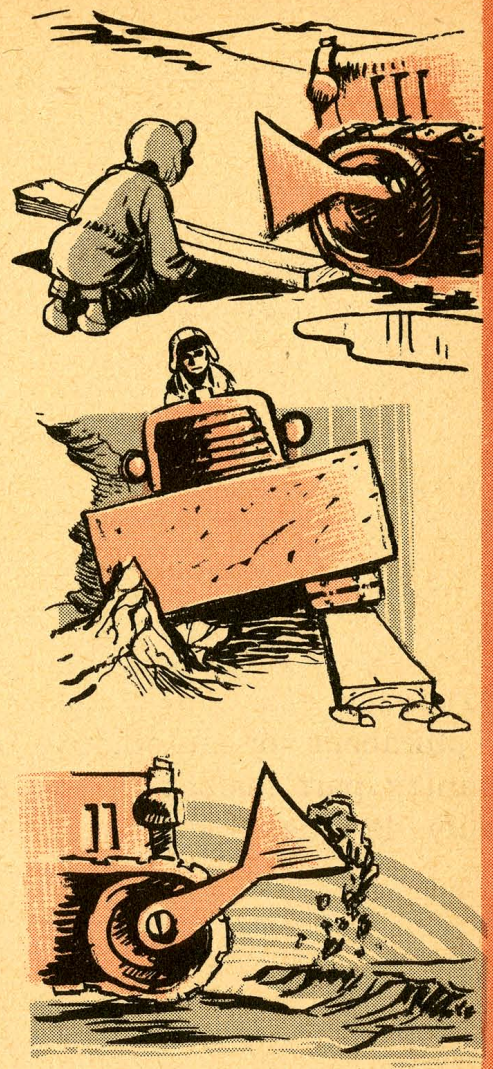
When you level off a field, and raise or lower the blade more than 1″ at a time, you'll likely leave an uneven surface. Then the uneven washboard effect will roller-coaster the tractor up and down as it crawls forward, cutting out more and more uneven layers of dirt. Keep this up long enough, and you'll get a field that looks like Josephine's hair-do after she's had a permanent wave. It's wise to keep the blade's up and down movements to less than an inch.

ANOTHER TIP

Should you try to crack through the top layer of frozen earth with the blade in its regular position, it could feel like you were trying to slice through a brick street. And the blade can't take much of that. It's better to take the easier way to get your cut.

Just lay a smooth log, plank, or railroad tie in front of one of the dozer's tracks the long way, and ride the dozer back and forth over it. This sets the tractor and its blade at an angle so that you'll cut with only the blade's pointed corner and soon tear through the frozen top soil.

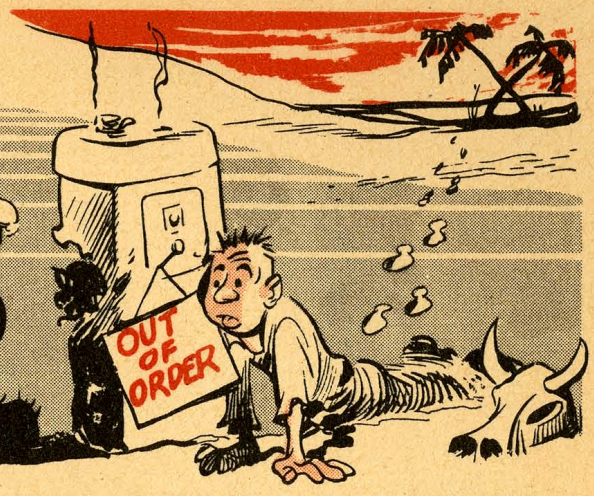
Once you've done that, it's easy to break up the surrounding area by turning the tractor and hitting the cut straight-ahead. Bring the blade up **under** the frozen surface and hoist with the dozer bowl.



THE ROOT OF THINGS

And finally, here's one that'll save your neck as well as your tractor. When you're using a dozer to push over trees, lay off once the tree begins to fall. Otherwise you're liable to find yourself and the tractor 20 ft off the ground on the tree's roots. To save your all, shift into reverse and move out of reach when the call is—"Timber!"

AVOID HOT TIMES BY KNOWING ALL THE COLD FACTS



The man who uses "what's on hand," instead of what's called for in repairing refrigerant lines, could make those cold things hot for himself if he doesn't watch.

It may be easier at times to get a plumber's or automotive mechanic's part instead of one specially designed for the cold box, but it's usually not a good idea to use it. Why? Lend an ear and we'll tell you.

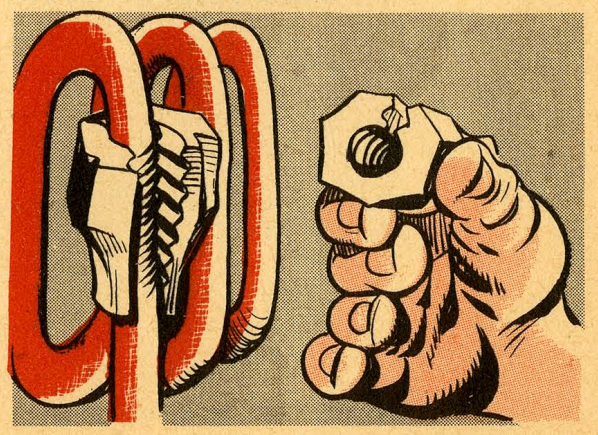
Take galvanized or cast iron fittings, f'rinstance. The coating on a galvanized fitting dissolves when it's used to carry Freon. Freon is the most common gas used in cold boxes. And cast iron fittings are almost as leaky as a rusty tin roof —at least when carrying the stuff under pressure.

For Freon, use only copper, brass, or steel fittings. But if you're squeezing ammonia, use only steel. Ammonia knocks heck out of copper and brass when it's around moisture—a little item you have plenty of with cooling systems.

Another reason for sticking to special refrigerant fittings is that they're usually closer machined than the others. Refrigerant gases will seep through smaller cracks easier than will water, oil or most anything else that's piped.

A common goof is in the use of flare nuts. When water gets under the long flank of the kind used for other purposes, it's usually OK. But where you're making cold, that water'll freeze and crush the tubing or crack the nut and you'll lose your gas. The flare nuts issued specially for refrigerator purposes are frostproof. That's why you need them.

All of which adds up to the fact that special refrigerant fittings give you real cool service, man. Need more be said?



CONTRIBUTIONS

PINNED-DOWN LEVERS

Dear Editor,

The M62 wrecker's manual-control-lever and transfer lever sometimes stick or freeze together on their common pin. Then when you move the transfer lever you engage the winch lever. While the safety lever at the winch should hold it, and ought to be looked at before the vehicle is operated, that lever could slip out—or could be somebody fouled it up or forgot to lock it. A loose winch can sting, or at least damage the front end.

To be sure the levers work independently of each other, remove cab floor tunnel and put a ¼-inch 45° grease-fitting in each lever at the pin (Fig. 1). Set the two fittings on the levers' right sides and face them upward so you can grease them

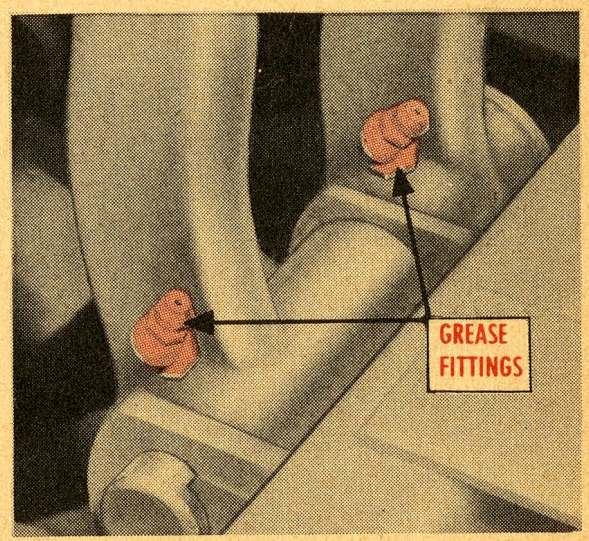


Fig. 1—A ¼-inch grease-fitting on each lever keeps the winch off the transfer lever's back.

and replace floor tunnel. Greasing thereafter will be accomplished once a year or every 12,000 miles.

Emmett Tobin
Russell B. Tipton
APG, Maryland

(Ed Note—Ordnance support has the tools for this job. Slipping it to them and sending through a UER are the firstest to help the mostest. Meantime, how about using both hands—hold one lever when moving the other. And, to protect yourself from a wandering-winch, double-check the winch's safety lever each time before you get in the cab.

Another idea you might like even better, that the experts are working on, is hinge H008-0503081 with a slot on one side, screwed to the floor-board, to lock the winch in place when it's not in use (Fig. 2). Then when you want to use it, all you gotta do is lift up the hinge. An added advantage to this set-up is that you won't be able to move the winch should you grab it by mistake when you reach for the transfer lever.)

UP-LIFTING IDEA

Dear Editor,

We had a lot of trouble with the M38A1's spare tire carrier breaking at the top, forward weld. With the bouncing around it gets in these hills, it's a wonder the welds last as long as they do. We rewelded it with a heavier and longer bead but found those welds broke too.

The gimmick we hit on that's doing the trick is a lower tire-support we got from a WW II Jeep that's seen its last days. Welded on the 'A1's rear cross-member, it works fine (Fig. 3).

MSgt George Paul
APO, San Francisco

(Ed Note—A spare tire up-lift is a swell idea but it may be rough getting an old Jeep tire support in the field. How about welding a brace out of two pieces of scrap metal? The upper part doesn't have to fit the tire's shape exactly so long as it gives it something to sit on. This can be done on approval by the Ordnance officer or a major command, as a field fix under AR 45-60.)

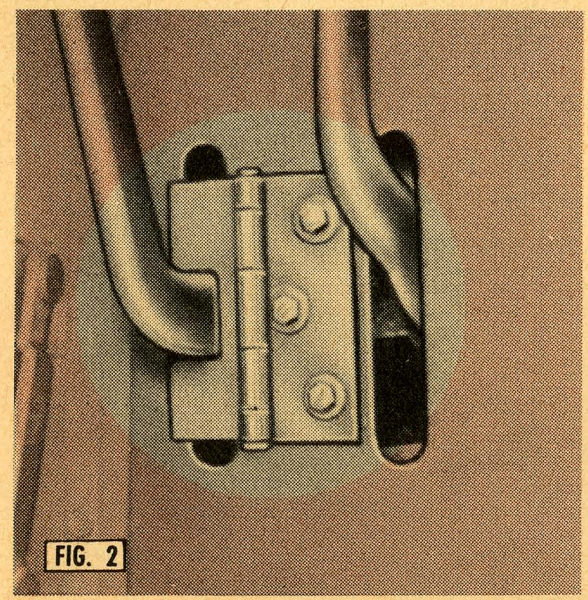


FIG. 2

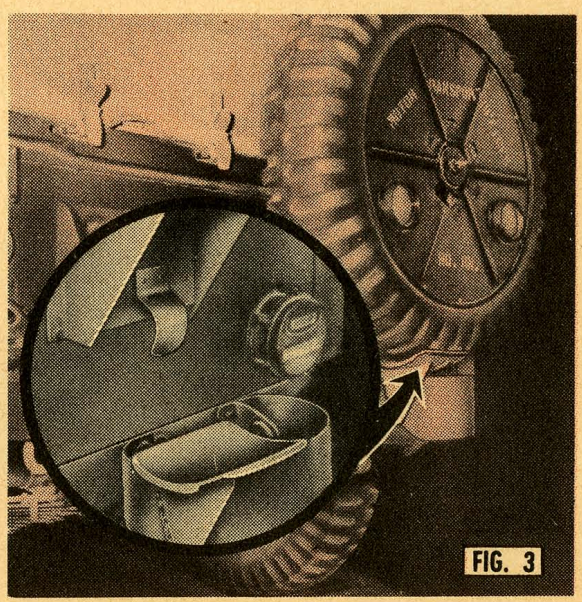
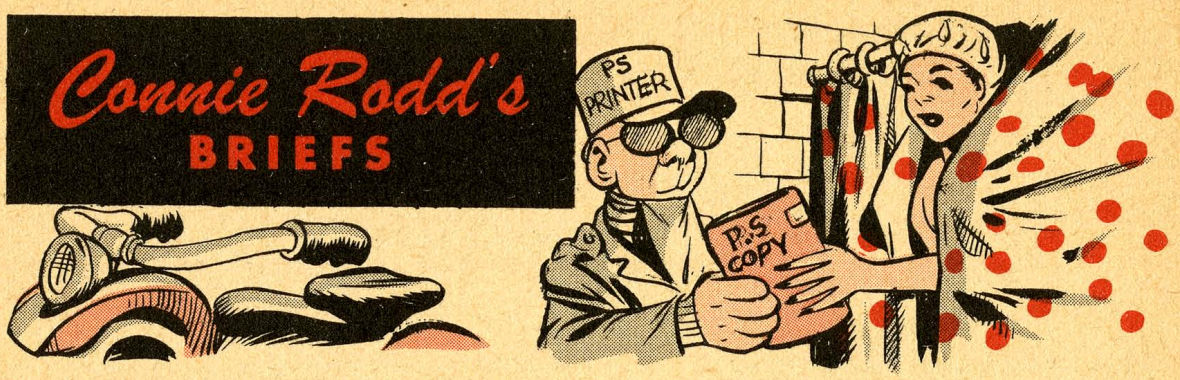


FIG. 3

Connie Rodd's BRIEFS



Two Parts Needed

When you requisition the overrunning-clutch assembly for the M34 Reo 2½-ton 6x6, be sure you order it by this number . . . G742-8376471. This is a new kit complete with key and washer. This way you don't get a sprag assembly iess a few parts. Dig out your SNL and jot down the new number.

Cushionized Windshield Bumpers

While passing through the motor pool the other day, I saw a neat trick for the M38 jeep. Someone had nailed short split sections of old hose onto the hood's windshield bumpers. They were painted OD, of course.

Dope On Generators

So you've been looking for some dope on those Hobart Generators? Look no more. For the 30-kw 400-cycle, you now can get TM 5-5072, LO 5-5072 and TB 5-5072-1. For the 30-kw 60 cycle, there's TM 5-5029, LO 5-5029 and TB 5-5029-1. See your nearest publication section. You can't tell the players without a program.

M41 Tach Cables

Just a word to the wise. When replacing the left air cleaner on your M41 Tank, be careful not to jam the tachometer cable between the air cleaner and the steer rod. After shoving the cleaner into place, shake the tach cable to be sure it's free. You don't want a cable kinked or bound. Some guys seem to think that it's nice to be able to steer the tank, you know.

Breaking your spiders?

If the transmission-to-transfer U-joint on your 5-ton M39-series has been giving you a fat headache, try the new spider for that location as a cure. Kit, repair, universal joint, G744-8332623 is what you should be using to doctor the transmission-to-transfer U-joint. The transfer-to-front axle and transfer-to-pillow block U-joints take Kit, repair, U-joint, G744-7348842.

Light Tankers, Hear Ye

M41 usta be T41E1, M41A1 usta be T41E2. This is hot off the griddle. The T141 is now M42.

PERPETUAL INDEX

Your monthly reference guide to all subjects covered in the last 12 issues of PS Magazine

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2C—INSIDE FRONT COVER; 3C—INSIDE BACK COVER; 4C—OUTSIDE BACK COVER

NEW NUMBERS FOR TECHNICAL MANUALS

HERE'S HOW IT'LL BE:

- The old "100-series" manuals will be **even-numbered.** (For 1st and 2nd echelons)
- The old "1000-series" manuals will be **odd-numbered.** (For higher echelons)

Just as simple as that.

On the new manuals you'll see the old number in smaller type just below the new number. Helps you to keep 'em straight.